

August 19, 2014

Mr. Jason Gunter  
Remedial Project Manager  
U.S. Environmental Protection Agency  
Region 7 - Superfund Branch  
11201 Renner Blvd.  
Lenexa, KS 66219

**Re: The Doe Run Company – Leadwood Mine Tailings Site Surface Water Management Plan**

Dear Mr. Gunter:

Enclosed on behalf of The Doe Run Company (Doe Run) is a revised version of the above-referenced plan. This document was revised to address comments made by the Missouri Department of Natural Resources that were received by Doe Run via email on July 29, 2014 and comments made by the United States Environmental Protection Agency, Region VII in a comment letter, sent via email, to Mark Nations dated August 4, 2014.

If you have any questions or comments, please call me at 573-638-5020 or Mark Nations at 573-518-0800.

Sincerely,



Ty L. Morris, P.E., R.G.  
Vice President

TLM/jms

Encl.

C: Mark Nations, TDRC  
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**Leadwood Mine Tailings Site  
Surface Water Management Plan  
Response to Comments**

The *Surface Water Management Plan* for the Leadwood Mine Tailings Site, Leadwood, Missouri was prepared for The Doe Run Company by Barr Engineering Co. in July 2014. This document was revised to address comments made by the U. S. Environmental Protection Agency (EPA), Region VII and the Missouri Department of Natural Resources (MDNR). A description of the revisions is provided below to assist EPA and MDNR in their review of the revised document.

<b>Comment Number</b>	<b>Response to Comment</b>
<b>EPA Comments</b>	
Specific Comment 1	To address this comment, text was added to the second and sixth paragraphs of Section 1.3.4.3. In addition, Appendix B was added to this document.
Specific Comment 2	To address this comment, text was added to the fourth paragraph of Section 2.1.1.
Specific Comment 3	To address this comment, text was added to Section 2.2. In addition, supporting text was added to Sections 1.3 and 2.0 for consistency.
General Comment 1	Section 3.0 was modified to discuss the schedule of the work. The previous Section 3.0 is now Section 4.0 and the previous Section 4.0 is now Section 5.0.
<b>MDNR Comments</b>	
1	To address this comment, two edits were made to Section 2.1.2 and to Construction Drawing C-10A.
2	To address this comment, the fifth paragraph was added to Section 2.1.1.
3	To address this comment, text was added to the second and third paragraphs of Section 2.1.1.
4	To address this comment, text was added to the fourth paragraph of Section 2.1.1.
5	To address this comment, the third paragraph was added to Section 2.1.2.

Hopefully, the above table will help in the review of the revised document. If you have any questions or require clarification of any of the responses, please call me at 573-638-5020 or Mark Nations at 573-518-0800.

# **Surface Water Management Plan**

## ***Leadwood Mine Tailings Site***

Prepared for  
The Doe Run Company

July 2014  
Revised August 2014

**RECEIVED**

AUG 26 2014

**SUPERFUND DIVISION**



# **Surface Water Management Plan**

## **Leadwood Mine Tailings Site**

Prepared for  
The Doe Run Company

July 2014  
Revised August 2014

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# Surface Water Management Plan Leadwood Mine Tailings Site

July 2014  
Revised August 2014

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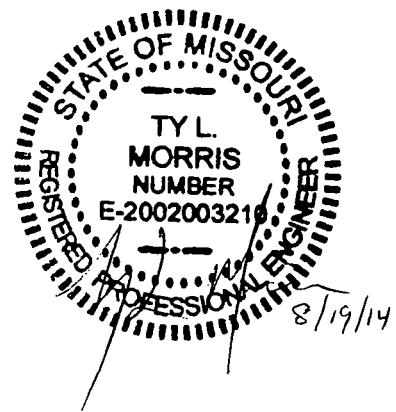
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# 1.0 Background

## 1.1 Site Description

The Leadwood Mine Tailings Site is located on the Flat River 7.5-Minute U.S. Geological Survey (USGS) quadrangle map as shown on Figure 1. The legal description is Section 4, 5, 8, 9, and 16 Township 36 North, Range 4 East in St. Francois County, Missouri. The site occupies approximately 1,100 acres between the towns of Frankclay, Wortham, and Leadwood, Missouri.

## 1.2 History of Mining/Milling Operations

Mining activities at the site commenced at and near the Leadwood Site about 1894. Early operations included mining, milling, and roasting. Ore feed for the Leadwood mill was from multiple mineshafts or mines in nearby areas. Ore was hauled to the mill from remote locations by rail, aboveground (early), and underground (later). Some roasting of ores may have continued at Leadwood through approximately 1920. The Leadwood mill was modernized and enlarged on occasion, until it was permanently closed in approximately 1965 (Barr, 2005).

## 1.3 Summary of Removal Activities Completed to Date

The Leadwood Mine Tailings Site was divided into four areas in the *Engineering Evaluation/Cost Analysis Report* (EE/CA) (Barr, 2005). These areas were the Chat Pile Area, the Tailings Area, the Dam/Spillway Area, and the East Seep and Erosion Area. The removal action activities completed for the previously referenced four areas were completed in accordance with the approved *Removal Action Work Plan* (RAWP) (Barr, 2007a), *Specifications* (Barr, 2007b), Construction Drawings (Barr, 2007c), and design modifications. A detailed description of the removal action activities will be provided in the Removal Action Report. A summary of the removal action activities that have been completed to date is provided below.

### 1.3.1 Chat Pile Area

The Chat Pile Area is the 35-acre area on the northern portion of the site located at the east end of Eaton Dam. Removal action activities on the Chat Pile Area focused on removing or stabilizing low strength materials, regrading areas to flatten the slopes, and the demolition of the remaining foundations from the mill facility and associated structures.

Work on the chat pile included removing all of the material above approximately Elevation 865 and regrading the pile to match into the upstream and downstream slopes of Eaton Dam, as well as the area to the east of the Chat Pile Area. Once grading activities were completed, the regraded chat pile was covered with a minimum of 12 inches of slope protection rock.

The low strength materials located in the area identified as the slimes area were excavated to a minimum of 3 feet below the final subgrade contours. For the portion of this area outside of the grading plan, slimes were excavated to a minimum of 3 feet below the surrounding grades. The excavated materials were placed in the disposal area. Over excavated areas were backfilled with general fill or slope fill. Once

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backfilling and grading activities were completed, the excavated area was covered with a minimum of 12 inches of slope protection rock. The portion of the slimes area south of the grading plan was covered with a minimum of 12 inches of cover soil.

Removal action activities in the slimes area also included the demolition of a decant tower located on the south side of the slimes area. Demolition activities lowered this structure to a minimum of 3 feet below the final subgrade. The portion of the decant tower deeper than 3 feet was left in place, backfilled with general fill to a minimum of 3 feet below the final subgrade elevations and covered. Debris from the demolition of the decant tower was placed in the disposal area.

Removal action activities in the Chat Pile Area also included demolishing the remnants of the structures that remained from the former milling operations. These structures were demolished down to a minimum of 2 feet below the existing ground surface. Any portion of the structure extending deeper than 2 feet below the final subgrade elevations was left in place. Debris from the demolition activities was buried in place or disposed of in the disposal area. The portion of the area affected by demolition activities located in the Chat Pile Area was covered with a minimum of 12 inches of the slope protection rock. The portion of the area affected by the demolition activities located in the mill area was covered with a minimum of 12 inches of cover soil and vegetated.

Removal action activities in the Chat Pile Area also focused on the area identified as the sugar bowl. This area was used as the onsite disposal area for unsuitable materials, including miscellaneous fill, debris encountered around the site, demolition debris, and the burned remains of cleared and grubbed materials. Once filled, the sugar bowl was graded and covered with a minimum of 12 inches of slope fill. The sugar bowl was also covered with a minimum of 12 inches of slope protection rock.

### **1.3.2 Tailings Area**

Removal action activities on the Tailings Area included improving the stormwater detention time upstream of Wortham Road, demolition of the remaining structures from operations in the portion of the Tailings Area south of the Chat Pile Area and in the Southern Mine Shaft Area, and reducing the potential for tailings migration due to wind or water.

Removal action activities on the portion of the Tailings Area south of Wortham Road included constructing a 1,400-foot-long stormwater control structure directly upstream of Wortham Road to temporarily detain the 100-year, 24-hour storm event for this watershed. This structure was constructed with a 20-foot wide crest at an elevation of 862.0 that drains towards the south at a five percent grade. The upstream slope of the structure has a gradient of 4H:1V and was constructed to tie-in with contours of the tailings basin to the south of the structure. The downstream slope, constructed with a gradient of 10H:1V, included a ditch between Wortham Road and the structure. This ditch captures the runoff from Wortham Road and discharges it into the original culverts under the road located near the east end of the structure. The original culverts, located near the east end of the structure, were cleaned out, covered, and blocked so that only water from the road ditch is discharged through them to the north side of Wortham Road. New culverts were installed during the construction of the structure on the western end of the structure. These culverts discharge to a swale that was constructed on the north side of Wortham Road.

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The swale, constructed on the north side of Wortham Road, was built to direct stormwater from south of Wortham Road to the creek located on the western side of the site. This swale was constructed to match into the existing ground contours on its eastern end and have a gradient towards the west of approximately 0.5 percent. Since the creek flows perpendicular to the swale, grading activities were completed on the banks of the creek and the western end of the swale to allow the swale to discharge into the creek without causing excessive erosion.

Removal action activities in the Tailings Area also included the demolition of two decant towers. These structures were demolished to a minimum of 2 feet below the surrounding existing ground elevation and backfilled with general fill to match the surrounding ground elevations. Demolition activities were also completed on the remnants of the structures that remained from the former mining operations around the shaft identified as Desloge Consolidated Lead Company (DCLC) #6 in the portion of the Tailings Area identified as the Southern Mine Shaft Area. These activities demolished the structures down to a minimum of 2 feet below the existing ground surface and backfilled with cover soil to match the surrounding ground elevations.

Work in the Southern Mine Shaft Area also included stripping contaminated materials and chat that had been deposited in the area. The materials that were unsuitable for use were taken to the sugar bowl and placed in the disposal area. The materials that were suitable for use in the construction activities were utilized around the site. Upon removal of these materials, the areas that were stripped were graded to drain and vegetated or covered with 12 inches of slope protection rock.

Removal action activities on the Tailings Area also included regrading areas that were steeper than 4H:1V or areas that had been eroded by surface water running across the site. Upon finishing the regrading activities, a minimum of 6 inches of cover soil was placed on the regraded areas except for those areas that have been eroded by surface water. These areas were covered with a minimum of 12 inches of slope protection rock.

Removal action activities on the Tailings Area also included vegetating the mine waste. Areas of mine waste that were barren or sparsely vegetated were covered with a minimum of 6 inches of cover soil. These areas, along with the areas where established vegetation existed, were seeded and fertilized.

### **1.3.3 East Seep and Erosion Area**

The East Seep and Erosion Area is the relatively flat approximately 50-acre secondary tailings basin located east of the Tailings Area. This area is bounded to the south by the Southern Mine Shaft Area, to the north by the mill facility and the town of Leadwood, and the east by Davis Crossing Road (Barr, 2007a). The focus of work on this area was to increase the stormwater detention time for this drainage area and buttress the upper portion of the downstream slope.

Removal action activities on the East Seep and Erosion Area included raising the crest of the downstream slope to temporarily detain the 75 percent probable maximum precipitation (PMP) event for this watershed. This structure was regraded to match into the existing ground contours on the north and south ends of the area. The water retained by this structure will temporarily pond around the existing

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decant tower through which stormwater will be discharged. The tower, which has an invert elevation of 847.0, had all of the original concrete above approximately 850.0 removed and replaced with a new inclined inlet that was constructed on the top of the original tower. Upon finishing the regrading activities, the areas affected by the removal action activities were covered with a minimum of 12 inches of slope protection rock.

In addition, a broad-crested emergency overflow was constructed in the crest of the slope where the raised slope abuts natural ground on the southwestern portion of the East Seep and Erosion Area. Water discharging from this overflow will enter the drainage basin to the south of the area and will rejoin the water discharged from the decant tower in the unnamed tributary to Big River on the east side of Davis Crossing Road.

Removal action activities also included retrieving mine waste that migrated into the woods at the base of the slopes and from the Hall property to the east of the East Seep and Erosion Area. This work included stripping the area to natural ground and removing mine waste to the extent possible. At the landowner's request, the stripping activities on the Hall property were completed in a manner that expanded the pond already located on the property. The areas that were stripped at the toe of the slope in the East Seep and Erosion Area were covered with a minimum of 12 inches of slope protection rock.

Removal action activities on the East Seep and Erosion Area also included vegetating the mine waste. Areas of mine waste that were barren or sparsely vegetated were covered with a minimum of 6 inches of cover soil. These areas, along with the areas where established vegetation existed, were seeded and fertilized.

#### **1.3.4 Dam/Spillway Area**

The Dam/Spillway Area is located on the northern portion of the site. This area includes Eaton Dam, Leadwood Dam, the area between the two dams, and the area between Leadwood Dam and the Big River. The focus of the work on the Dam/Spillway Area was to retrieve materials that have migrated downstream of Leadwood Dam and to cover areas of barren or sparsely vegetated tailings.

##### **1.3.4.1 Eaton Dam**

Removal action activities on Eaton Dam included covering the portions of the upstream and downstream slopes not covered during the completion of the previous activities in 1994. These areas were covered with a minimum of 12 inches of slope protection rock.

Removal action activities on Eaton Dam also included regrading areas beyond the toe of the upstream and downstream slopes steeper than 4H:1V, or those areas that were being eroded by the surface water running across the site. These areas were regraded to a gradient of 4H:1V or flatter. Upon finishing the regrading activities, these areas were covered with a minimum of 12 inches of slope protection rock.

##### **1.3.4.2 Leadwood Dam**

Removal action activities on Leadwood Dam focused on regrading areas between the two dams steeper than 4H:1V or those areas being eroded by the surface water running across the site. These areas were

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regraded to a gradient of 4H:1V or flatter. Upon finishing the regrading activities, a minimum of 6 inches of cover soil was placed on the regraded areas except for those areas that have been eroded by surface water. These areas were covered with a minimum of 12 inches of slope protection rock.

Removal action activities on the Leadwood Dam area also included covering the upstream and downstream slopes of the dam. These areas were covered with a minimum of 12 inches of slope protection rock.

#### **1.3.4.3 Spillway**

This portion of the Dam/Spillway Area is located downstream of Leadwood Dam between the dam and the Big River. This area includes the area between Leadwood Dam and old Missouri Highway 8 (West North Street), the area between old Missouri Highway 8 and new Missouri Highway 8, and the area between new Missouri Highway 8 and Huntsford Road. Doe Run was unable to obtain access to the portion of this area downstream of Huntsford Road from the landowner so no work was completed on that portion of the area.

Removal action activities in the portion of the spillway between Leadwood Dam and old Missouri Highway 8 focused on retrieving materials that had migrated downstream of the dam. This work included stripping the area to natural ground. Once this area was stripped to natural ground, the natural soils were tested to determine if the natural soils had been contaminated. Soils that exceeded the established standards for the site were removed and placed in the disposal area or covered with a minimum of 6 inches of cover soil brought in from an offsite borrow source. Soils that did not exceed the standard were regraded to drain towards the creek channel. Areas where stripping activities were completed along the creek channel were covered with a minimum of 12 inches of slope protection rock. Copies of the x-ray fluorescence (XRF) soil sample results for this area are included in Appendix B-1.

As the stripping activities were completed, the slope of Leadwood Dam was extended at the existing gradient to match into the natural ground below the mine waste. In addition, material was left in place adjacent to old Missouri Highway 8 to protect a sewer line, as well as along the eastern side of the area to maintain a haul road. The areas where the slope of the dam was extended, as well as where tailings were left in place, were covered with a minimum of 12 inches of slope protection rock.

Removal action activities in the portion of the spillway between old Missouri Highway 8 and new Missouri Highway 8 included regrading the mine waste located in this area to drain towards Eaton Creek. Upon finishing the regrading activities, a minimum of 12 inches of cover soil was placed on the regraded area except for those areas that have been or are likely to be eroded by surface water. These areas were covered with a minimum of 12 inches of slope protection rock. The areas covered with cover soil were seeded and fertilized.

Removal action activities in this portion of the spillway also included removing mine waste from Eaton Branch Creek. This work consisted of excavating materials from the creek, regrading the eastern slope of the creek, and cleaning out the culverts under old Missouri Highway 8 and new Missouri Highway 8. Regrading activities were also completed on the western slope of the creek to minimize erosion, but these

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regrading activities were minimized, as that slope was primarily made of natural soil and relatively well vegetated. The materials removed from the creek and culverts were used in the regrading activities described above. Regrading activities on the eastern slope of the creek regraded the slopes to 4H:1V or flatter. Once regrading activities were completed, this slope was covered with a minimum of 12 inches of slope protection rock.

Removal action activities in the portion of the spillway downstream of Missouri Highway 8 focused on retrieving materials that migrated downstream of the dam between Missouri Highway 8 and Huntsford Road. This work included stripping the area to natural ground including the stream channel. The natural soils were tested to determine if the natural soils have been contaminated. If the soil exceeded the standards, the area was covered with a minimum of 6 inches of cover soil brought in from an offsite borrow source. If the soil did not exceed the standards, the area was regraded to match into the surrounding natural ground contours, seeded, and fertilized. Areas where removal was completed that had a gradient of 4H:1V or steeper were covered with a minimum of 12 inches of slope protection rock. Copies of the XRF soil sample results for this area are included in Appendix B-2.

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## **2.0 Supplemental Work for Surface Water Quality Improvement**

This section of the report describes additional, supplemental work that is intended to be implemented to minimize the volume and improve the water quality discharging from the Leadwood Site. The Leadwood Site is located within the Owl Creek-Big River Watershed (HUC 071401040111) and has a drainage area of 2,179 acres that is located upstream from the Eaton and Leadwood Dams, respectively. Discharges from the Eaton and Leadwood Dams flow to Eaton Branch and ultimately to the Big River some three-fourths mile downstream. During certain runoff conditions, the Leadwood Site receives significant volumes of surface water flow from offsite areas. This additional run-on volume of water contributes to saturated tailings and the phreatic water surface of the tailings basin, which in turn contributes to seeps at the toe of the Eaton and Leadwood Dams, respectively.

Doe Run is planning the implementation of additional work that is intended to reduce and better manage the run-on and infiltration of stormwater. This additional surface water is believed to ultimately contribute to zinc-containing seepage from the tailings dams and exterior slopes of the tailings pile. The remedial measures are segregated into the East Seep and Erosion Area and the Tailings Area including Eaton and Leadwood Dams. Supplemental work for the East Seep and Erosion Area is planned for implementation during calendar year 2014 and described in Section 2.1. Supplemental work for the Tailings Area is discussed in Section 2.2.

### **2.1 East Seep and Erosion Area**

#### **2.1.1 Low Permeability Cover**

Supplemental work in the East Seep and Erosion Area will focus on covering the tailings as shown in Construction Drawing C-10A with a minimum of 12 inches of low permeability cover soil. Many of the tailings in this area have vegetation established, but little to no cover soil. Consequently, a significant portion of the precipitation that falls onto this area infiltrates into the underlying tailings, which contributes to the seepage at the toe of the slope of this area. The addition of soil cover for this area is intended to minimize infiltration and promote runoff.

Due to the dense nature of the vegetation in the area where grading activities are to be completed, it will not be possible to place the cover soil in this area without clearing the vegetation first. Therefore, completion of this work will include the clearing and grubbing of the vegetation that is growing on the area that is to be covered with cover soil. The area to be cleared and grubbed is approximately the same area where contours are shown on Construction Drawing C-10A. However, adjustments may need to be made to that depending on where natural ground or existing cover materials are encountered. The vegetation that is cleared and grubbed will be placed in the area north of the closed onsite quarry to be used as wildlife habitat.

Once clearing and grubbing activities have been finished, grading activities will be completed, as allowed by the tailings material, to smooth the ground surface and promote drainage towards the southwest. This

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will be done in a manner that will generally follow the contours shown on Construction Drawing C-10A. Once grading activities have been completed, cover soil will be placed to bring the elevation to final grade. The cover soil, which will have significant clay content, will experience a certain amount of compaction as it is placed, but a specific permeability or compaction specification will not be required. It is also likely that the cover soil thickness will exceed 12 inches in many areas due to the compressibility of the underlying tailings and the need to bring in additional clay material to reach the final grade.

The source area for the cover soil is anticipated to be the area to the south and west of the closed onsite quarry. Portions of this area were cleared when the quarry was still in use, but the quarry was closed before the soil was stripped. The cover soil to be utilized will meet the requirements identified in the approved RAWP (Barr, 2007a) and *Specifications* (Barr, 2007b). Sampling activities to document the cover soil being utilized will be completed with the same frequency and for the same parameters that are described in the approved *Specifications* (Barr, 2007b). Upon completion of the grading activities, the area will be fertilized, limed (as needed), and seeded in accordance with the approved *Specifications* (Barr, 2007b).

Operation and maintenance activities associated with the work completed in this area will be included as part of the Post-Removal Site Control Plan being developed for this site.

### **2.1.2 Grading, Surface Water Collection, and Monitoring**

As shown on Construction Drawing C-10A, the area will be graded to drain to a low-flow channel that will be constructed to discharge through the existing emergency overflow structure on the southwest corner of the area. This new low-flow channel, as shown on Construction Drawings C-10A and C-20, will have a minimum bottom width of 10 feet and a minimum depth of 4 feet with 5H:1V side slopes. The rock used for erosion control in the channel will conform to the standards for Type 2 Riprap and Slope Riprap described in the approved *Specifications* (Barr, 2007b). The channel will extend to the south and east and surface water that enters the channel will eventually drain to the southeast to a county road ditch and culvert that crosses under Davis Crossing Road. Monitoring of the discharge from the new low-flow channel is not planned since water discharging through this channel will not have come into contact with any tailings or chat.

The newly constructed cover and low-flow channel provide similar surface water management control as the existing decant tower and culvert. As was done in the design for the existing decant tower and culvert, hydrologic modeling was completed for the revised design using two hypothetical storms. The first event was the 100-year 24-hour storm. The new low-flow channel was designed to handle runoff flows from this event, which amounts to approximately 7.2 inches of precipitation over a 24-hour period, without overtopping. The second event was the 72-hour, 75 percent PMP storm event. As was previously the case for this area, this event, which amounts to 31.5 inches over a period of 72 hours, resulted in water discharging through the emergency overflow. The 75 percent hyetograph that was developed for the RAWP (Barr, 2007a) was utilized for critical flow periods during the 75 percent PMP storm event.

If needed, rock to be utilized during the completion of this work will be purchased from Morgan and White Quarry in Leadwood, Missouri or Leadbelt Materials Quarry in Park Hills, Missouri. Sampling

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activities to document the rock being utilized will be completed with the same frequency and for the same parameters that are described in the approved *Specifications* (Barr, 2007b).

### **2.1.3 Decant Tower and Pipe/Culvert**

The existing decant tower, installed during the operation of the facility, has dimensions of approximately 5 feet by 5 feet with a depth of approximately 42 feet. As part of the removal action activities, the structure was modified to be used to convey stormwater that collects on the surface of the East Seep and Erosion Area to the stormwater pond that discharges through the culverts under Davis Crossing Road. The condition of this structure is not well documented; however, historic observations have identified apparent structural defects of the vertical tower and horizontal pipe/culvert. It is believed that these defects provide a preferential flow path that allows surface water direct communication with the tailings and contribute to the seeps at the toe of the slope of the East Seep and Erosion Area.

As part of the supplemental work, the remaining aboveground portion of the vertical tower will be removed. The lower 3 feet of the tower will be filled with quarry rock. The remaining portion of the tower will be filled with concrete to an elevation that is level with the existing ground surface. At least 3 feet of low permeability soil will be placed over the concrete and blended into the final contours of the cover soil for the area. At this time, the horizontal pipe, which is located at the base of the vertical tower, will remain open to allow existing water in the tailings to drain. In the future, the horizontal pipe component of the tower may be pressure grouted and sealed once drainage has significantly slowed or ceased.

### **2.1.4 Seep Pond Discharge**

Monitoring of the discharge of the seep pond will continue during and after the implementation of the cover for the East Seep and Erosion Area. Concentration and volume/rate of the discharge will be monitored and a treatment/long-term management strategy will be proposed for the discharges from the seep pond once the effect that the cover and surface water alterations will have on the seepage rate and concentration of the discharge has been established.

## **2.2 Tailings Area**

Doe Run is also considering additional work on portions of the Tailings Area, including Eaton and Leadwood Dams, to reduce and better manage the run-on and infiltration of stormwater. This additional surface water is believed to ultimately contribute to zinc-containing seepage from the tailings dams and exterior slopes of the tailings pile. However, Doe Run and the EPA are currently in discussions regarding the establishment of a soil repository in the Tailings Area upstream of the Eaton and Leadwood Dams. Depending on the size of this repository, where it is located, and how it is accessed, the establishment of a soil repository has the potential to significantly alter the surface water hydrology of the Tailings Area including the infiltration and run-on. This might significantly affect the volume and concentration of seepage at the toe of the Eaton and Leadwood Dams. As a result, the establishment of any additional remedial measures for this area is premature at this time, considering the potential impact a soil repository might have on surface water hydrology. Once a determination has been made about placing a repository at the site, additional remedial measures for this area will be evaluated. This evaluation will take into account the conceptual design of a repository and any logistical issues associated with the

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repository (if a repository is to be located at the site), as well as include the development of an implementation plan for the supplemental work and schedule for the implementation of the additional work.

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## **3.0 Schedule**

An exact starting date for this project is not given. Instead, the starting date is predicated upon the approval of this document. Table 1 provides a list of tasks to be completed. The sequence of the tasks shown was not provided to show the exact order of work. The exact order will be determined as construction activities progress and will be based on a multitude of factors including, but not limited to, the type of equipment needed for given tasks, logistical issues, the weather, and unforeseen existing conditions.

The grouping of tasks and the amount of time estimated to accomplish the tasks is strictly for showing the estimated length of time it will take to complete these activities. The list was given an approximate start time for each group of tasks as it related to the approval of the RAWP. In addition, an estimated number of weeks to complete each group of tasks was approximated. The actual number of weeks to complete a given task may vary based on conditions encountered during the completion of the task. While the assumed amount of time needed to complete each task may vary, it is believed that the total length of time needed to complete these activities is relatively accurate. The schedule was developed using the following assumptions:

During construction, multiple tasks may be worked on simultaneously.

The application of rock and cover soil will be completed as regrading activities are finished.

Vegetation activities will be completed as soon as cover soil has been placed and seasonal conditions are appropriate.

Subsequent vegetation activities will be completed as part of the post-removal site control activities, which will focus on the long-term care and maintenance of the vegetation initially established.

These activities will be completed using a core equipment fleet that consists of the following:

- (2) Excavators
- (2) Komatsu D65 bulldozers or equivalent
- (1) Skid steer
- (4) Volvo articulated dump trucks or equivalent
- (1) Articulated water truck

Additional "specialized" equipment will be brought onsite to complete specific tasks as needed.

The Doe Run remediation crew will be maintained at its current size of five people. A typical work week will be approximately 40 hours per week, which will be completed utilizing a four-day per week schedule.

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**Table 1      Proposed Construction Schedule**

<b>Activity</b>	<b>Start Date</b>	<b>Completion Date</b>
Mobilization – Including moving facilities and equipment to the site.		Completed prior to approval of work plan
Clearing and grubbing vegetation. Vegetation stockpiled near quarry.	As soon as SMP is approved.	3 weeks after start of task
Grade area to drain towards the emergency overflow.	Upon completion of clearing and grubbing.	3 weeks after start of task
Demolish the portion of the decant tower above the existing grade.	Upon completion of grading.	1 week after start of task
Plug decant structure with rock and concrete.	Upon completion of demolition activities.	2 weeks after start of task
Haul clay and place at least 1 foot of clay over entire area.	Upon completion of grading activities.	4 weeks after start of task
Construct channel through the emergency spillway.	Upon completion of grading activities.	2 weeks after start of task
Replace rock in emergency overflow and place rock in channel as needed.	Upon completion of channel construction through emergency spillway.	1 week after start of task
Vegetate area where soil was placed.	Upon completion of all other activities.	2 weeks after start of task
<b>Total Time for Completion</b>		<b>18 Weeks</b>

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## **4.0 Summary/Conclusion**

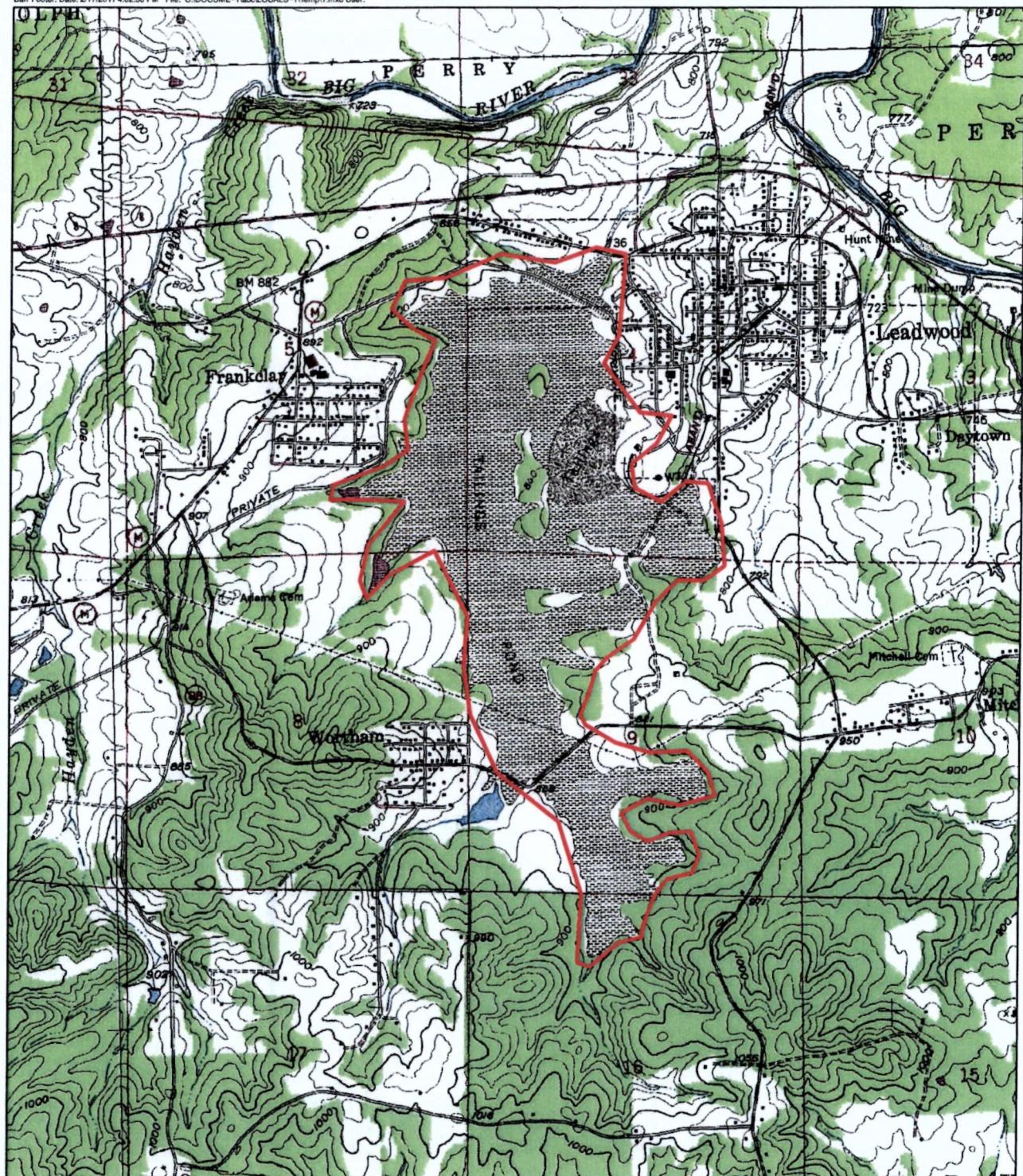
The Doe Run Company is proposing a phased approach to the implementation of additional remedial measures that are designed to reduce infiltration into the tailings and thereby reduce the volume of seep discharges. Additional monitoring of seeps and surface water discharges will also occur during this period while the issue of the soil repository is resolved. Once the issue of a soil repository has been resolved, additional remedial measures will be evaluated and proposed for the Tailings Area including the Eaton and Leadwood Dams.

---

## 5.0 References

- Barr Engineering Co., 2007a. *Removal Action Work Plan (RAWP), Leadwood Mine Tailings Site, Leadwood, Missouri*, Prepared for The Doe Run Company. March 2007.
- Barr Engineering Co., 2007b. *Specifications, Leadwood Mine Tailings Site, Leadwood, Missouri*, Prepared for The Doe Run Company. March 2007.
- Barr Engineering Co., 2007c. Construction Drawings, Leadwood Mine Tailings Site, Leadwood, Missouri, Prepared for The Doe Run Company. March 2007.
- Barr Engineering Co., 2005. *Engineering Evaluation/Cost Analysis Report, Leadwood Mine Tailings Site, Park Hills, Missouri*, Prepared for The Doe Run Company. September 2005.

## **Figures**



**Appendix A**  
**Construction Drawings**



0 100 200  
SCALE IN FEET

NOTES:

1. CONTOURS SHOWN FOR GRADING AND SOIL PLACEMENT ARE APPROXIMATE AND MAY BE ADJUSTED BASED ON CONDITIONS ENCOUNTERED DURING CONSTRUCTION. THESE CONTOURS ARE FINAL GRADE CONTOURS.

2. CLEARING AND GRUBBING WILL BE COMPLETED ON AN AS NEEDED BASIS.

3. ROCK WILL BE REMOVED FROM SLOPE AS NEEDED AND STOCKPILED SO THAT WORK CAN BE COMPLETED.

4. HAUL ROADS ARE COVERED WITH A MINIMUM OF 12 INCHES OF ROCK. REPAIRS WILL BE COMPLETED AS NEEDED ONCE WORK AT THE SITE IS COMPLETE.

5. THE FINAL LOCATION OF THE EMERGENCY OVERFLOW IS APPROXIMATE. THE CREST OF THE OVERFLOW IS AT ELEVATION 851.5. THE ROCKING SCHEME FOR THE EMERGENCY OVERFLOW IS SHOWN ON

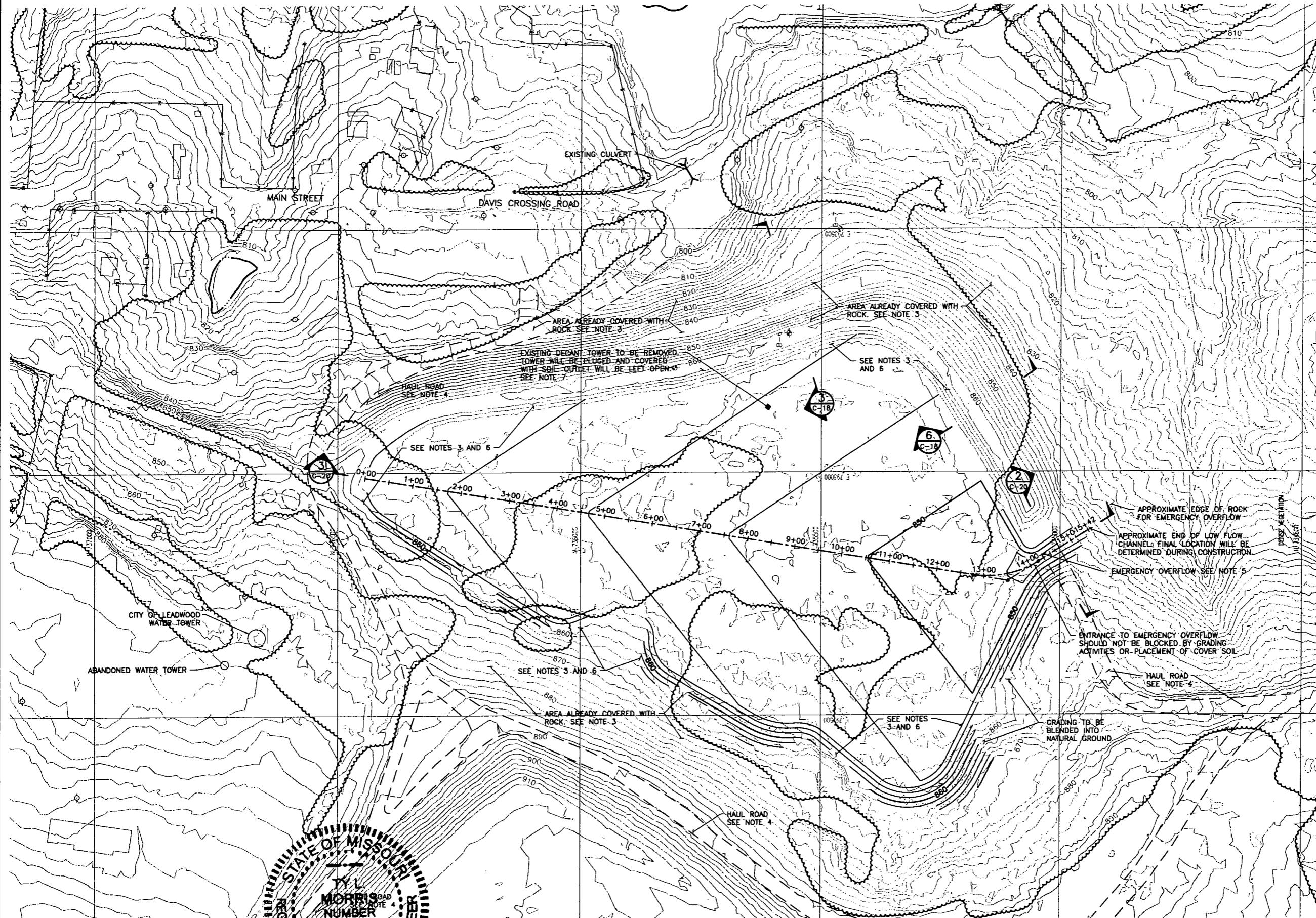
C-18

6. COVER SOIL WILL BE PLACED ON REGRADED TAILINGS. COVERING EXISTING RIPRAP WILL BE MINIMIZED TO THE EXTENT POSSIBLE.

7. DEMOLISH PORTION OF EXISTING TOWER FLUSH WITH GROUND SURFACE. FILL BOTTOM 3 FEET WITH QUARRY ROCK AND THEN FILL WITH CONCRETE TO EXISTING SURFACE. PLACE AT LEAST 3 FEET OF LOW PERMEABILITY COVER OVER CONCRETE AND BLEND SOIL INTO FINAL CONTOURS TO MATCH GRADE.

8. AREAS WITH NEWLY APPLIED 1 FOOT OF COVER WILL BE SEEDED AND FERTILIZED IN ACCORDANCE WITH APPROVED SEEDING SPECIFICATION.

9. TAILINGS TO BE EXCAVATED MAY BE SATURATED AND SOFT. IF FILL AREAS CANNOT BE CONSTRUCTED OUT OF TAILINGS, ADDITIONAL CLAY CAN BE USED TO FILL TO FINAL DESIGN.



NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION

STATE OF MISSOURI  
TY L  
MORRIS  
NUMBER  
E-2002003210  
PROFESSIONAL ENGINEER  
8/19/14

CLIENT	M/B/N			
BID				
CONSTRUCTION	8/16/14			
EPA	07/22/14			

RELEASED TO/FOR	A	B	C	O	1	2	3
DATE RELEASED							

Project Office:	AS SHOWN
BARR ENGINEERING CO.	
1001 DIAMOND RIDGE	
SUITE 1100	
JEFFERSON CITY, MO 65109	
Corporate Headquarters: Minneapolis, Minnesota	
Ph: 612-888-324-3933	
Fax: (573) 636-5001	
www.barr.com	

Scale	AS SHOWN
Date	6/16/14
Drawn	CMS2
Checked	AJN
Designed	AJN
Approved	TLM

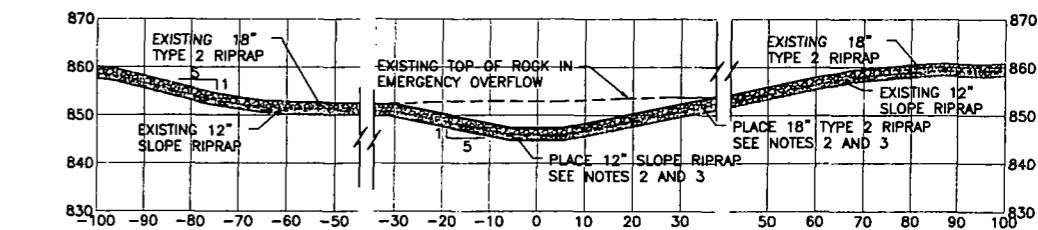
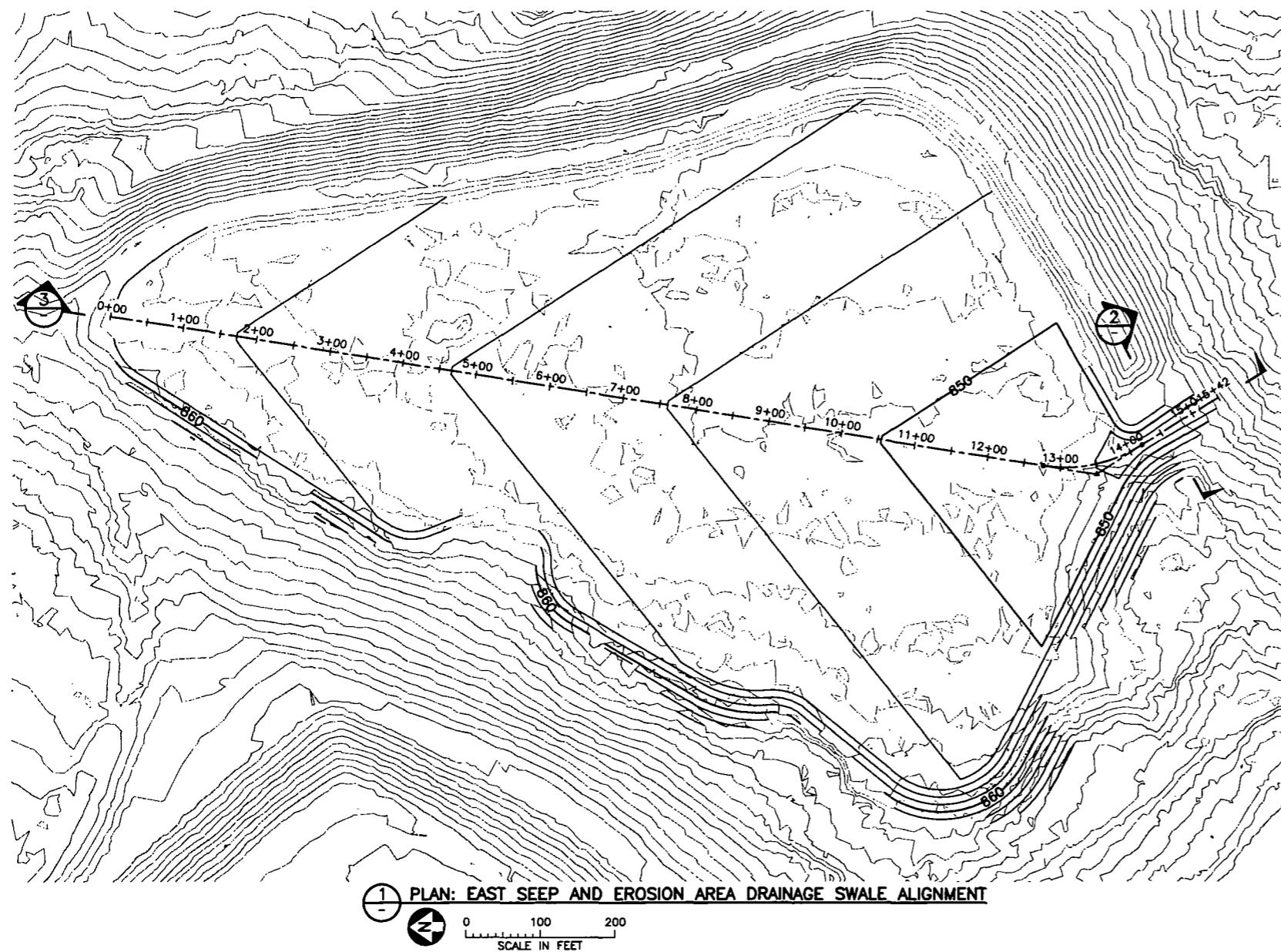
**BARR**

Corporate Headquarters:  
Minneapolis, Minnesota  
Ph: 1-800-632-2277

THE  
**DOE RUN**  
COMPANY

LEADWOOD MINE TAILINGS SITE  
LEADWOOD, MISSOURI  
REMOVAL ACTION  
EAST SEEP AND EROSION AREA

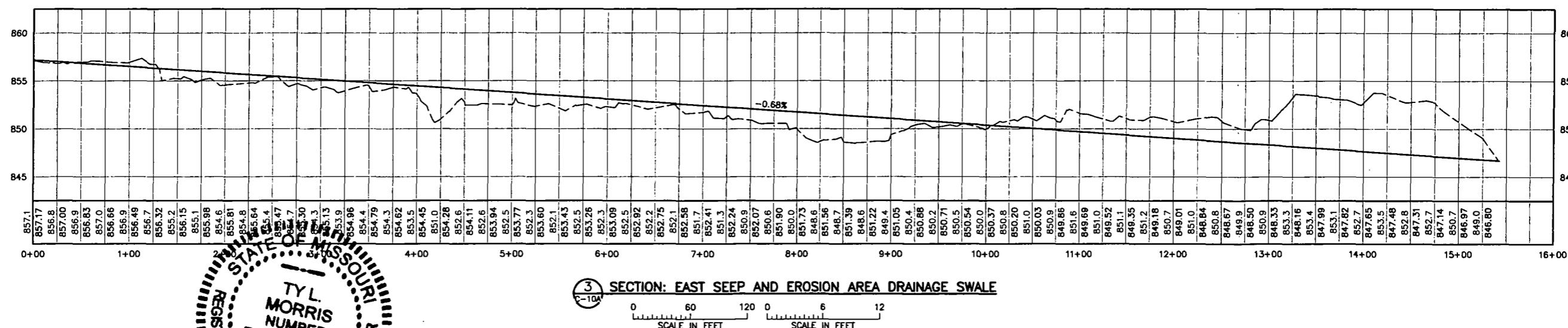
BARR PROJECT No.  
**25/86-013 TLM2**  
CLIENT PROJECT No.  
DWG. No. **C-10A** REV. No. **B**



**2 SECTION: EAST SEEP AND EROSION AREA EMERGENCY OVERFLOW AND LOW FLOW SWALE**

#### **NOTES:**

1. EXISTING ROCK WILL BE REMOVED FROM THE PORTION OF THE EMERGENCY OVERFLOW WHERE CONSTRUCTION ACTIVITIES WILL BE COMPLETED TO CONSTRUCT THE LOW FLOW SWALE.
  2. LOW FLOW SWALE TO BE COVERED WITH ROCK AS SHOWN, UNLESS BEDROCK IS ENCOUNTERED.
  3. ANY PORTION OF LOW FLOW SWALE CONSTRUCTED ON BEDROCK WILL NOT BE COVERED WITH QUARRY ROCK. ROCKING SCHEME WILL TIE INTO BEDROCK BUT NOT COVER BEDROCK.
  4. CONTOURS SHOWN FOR GRADING AND SOIL PLACEMENT ARE APPROXIMATE AND MAY BE ADJUSTED BASED ON CONDITIONS ENCOUNTERED DURING CONSTRUCTION. THESE CONTOURS ARE FINAL GRADE CONTOURS.



CLIENT	26/26/14			
BID				
CONSTRUCTION	26/19/14			
EPA	27/02/14	28/13/14		
<b>RELEASED TO/FOR</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>
	<b>DATE RELEASED</b>			



**Project Office:**  
**BARR ENGINEERING**  
1001 DIAMOND PARK  
SUITE 1100  
JEFFERSON CITY, MO 65101  
Phone: 1-888-324-3937  
Fax: (573) 638-5000

VERTICAL	
NG CO. RIDGE	Scale
MO 85109 33 1	Date
	Drawn
	Checked
	Designed
	Approved

**THE  
DOE RUN  
COMPANY**

**LEADWOOD MINE TAILINGS SITE  
LEADWOOD, MISSOURI**

**REMOVAL ACTION  
PROFILE AND SECTIONS EAST SEEP AND EROSION AREA**

BARR PROJECT No.	25/86-013 TLM2
CLIENT PROJECT No.	
DWG. No.	REV. No.
C-20	B

## **Appendix B**

### **XRF Soil Sampling Results**

## **Appendix B-1**

### **Spillway Area - Leadwood Dam to Old Missouri Highway 8**

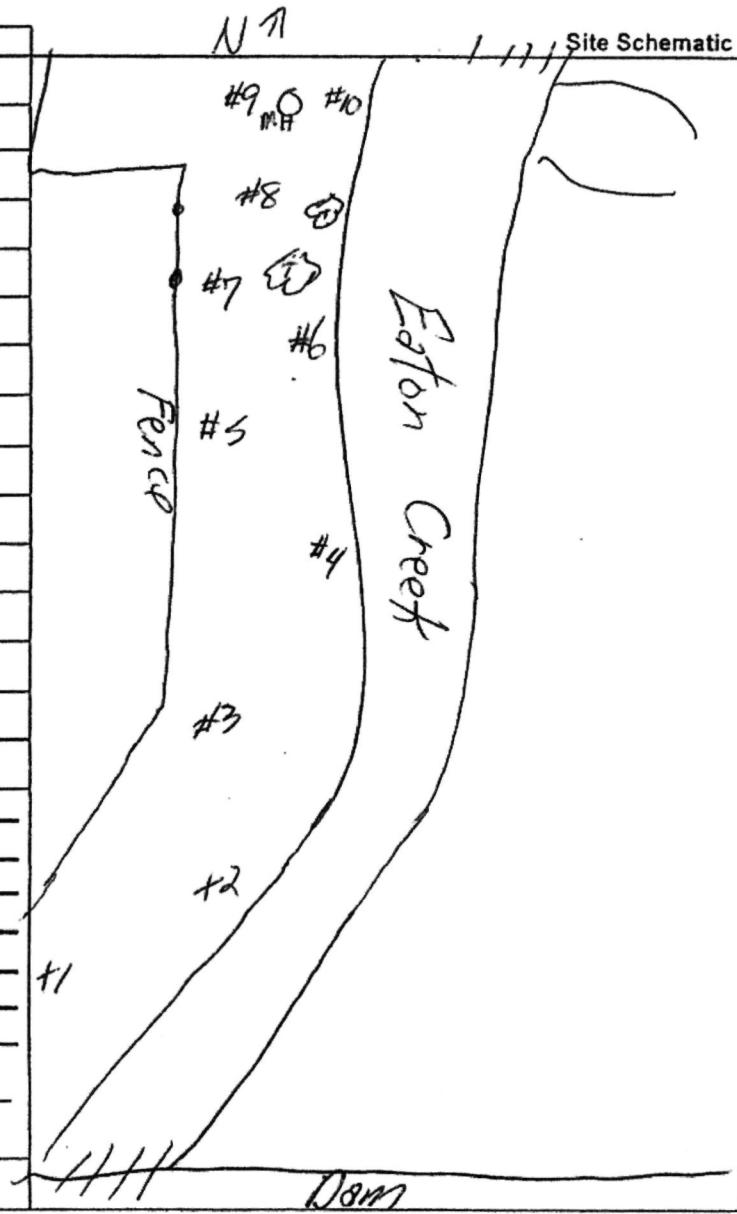


## **Soil Sample and Access Data Form**

Property	<u>Leadwood Remediation</u>	Date	<u>02 Oct 01</u>
Owner Name	<u>Northofdam, west of Eston Croft</u>	Phone	
Owner address if different from above			
Person Authorizing Access		Phone	
Signature		Relation to owner	

Sample ID	Sample Description	Sample Result
LWRem #1	Leadwood Remediation #1	274 ppm
LWRem #2	" #2	1010 ppm
LWRem #3	" #3	124 ppm
LWRem #4	" #4	478 ppm
LWRem #5	" #5	305 ppm
LWRem #6	" #6	4440 ppm
LWRem #7	" #7	4140 ppm
LWRem #8	" #8	1160 ppm
LWRem #9	" #9	4940 ppm
LWRem #10	" #10	3590 ppm

**Notes:**



### Subgrade Soil Sampling Data Form

Yard ID Leadwood Remediation Date 04 Sept 07  
 Property Address North of dam, west of Eaton Creek

Area to remove \_\_\_\_\_

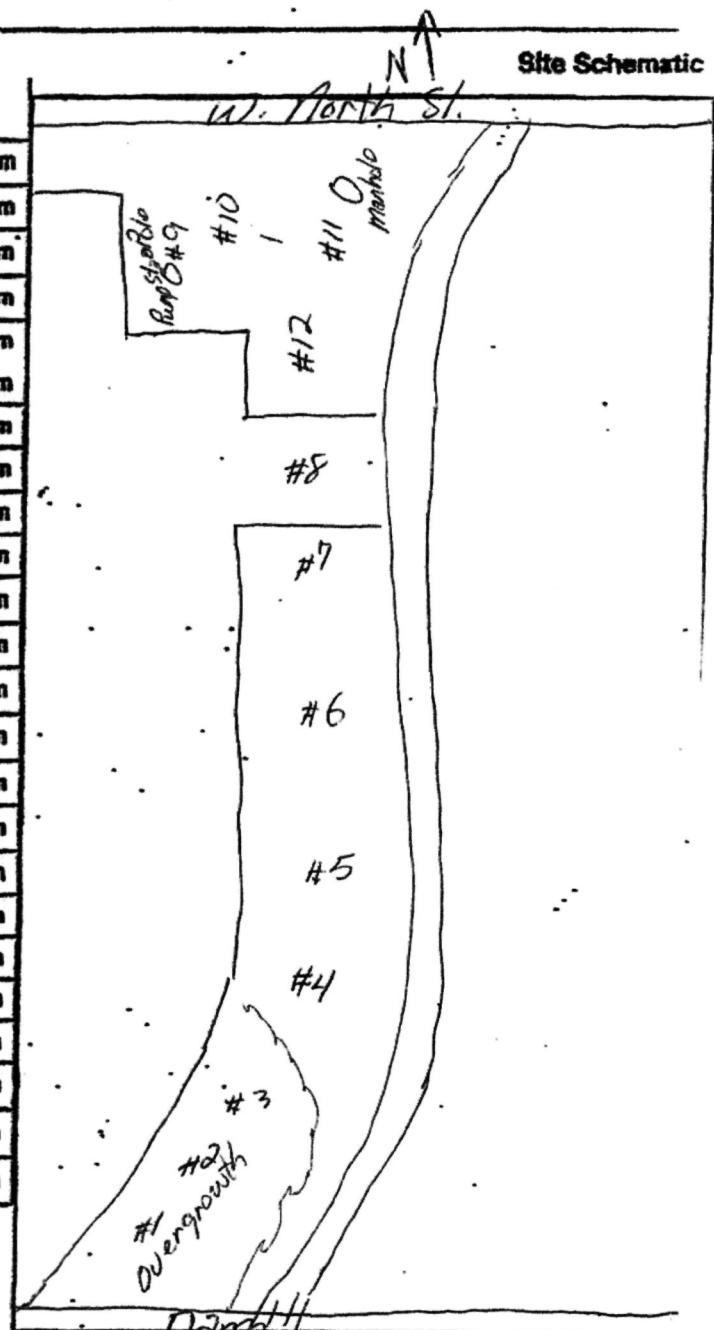
Sample ID	XRF #	Note	Sample Result
1	226	LW Rem #1-9-4	506 ppm
2	232	" #2-9-4	654 ppm
3	233	" #3-9-4	1330 ppm
4	234	" #4-9-4	484 ppm
5	235	" #5-9-4	684 ppm
6	236	" #6-9-4	1600 ppm
7	237	" #7-9-4	4570 ppm
8	238	" #8-9-4	5150 ppm
9	239	" #9-9-4	2130 ppm
10	240	" #10-9-4	3400 ppm
11	241	" #11-9-4	6580 ppm
12	242	" #12-9-4	5110 ppm
13			ppm
14			ppm
15			ppm
16			ppm
17			ppm
18			ppm
19			ppm
20			ppm
21			ppm
22			ppm
23			ppm
24			ppm

Notes:

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Sampling Team Initials: GTH



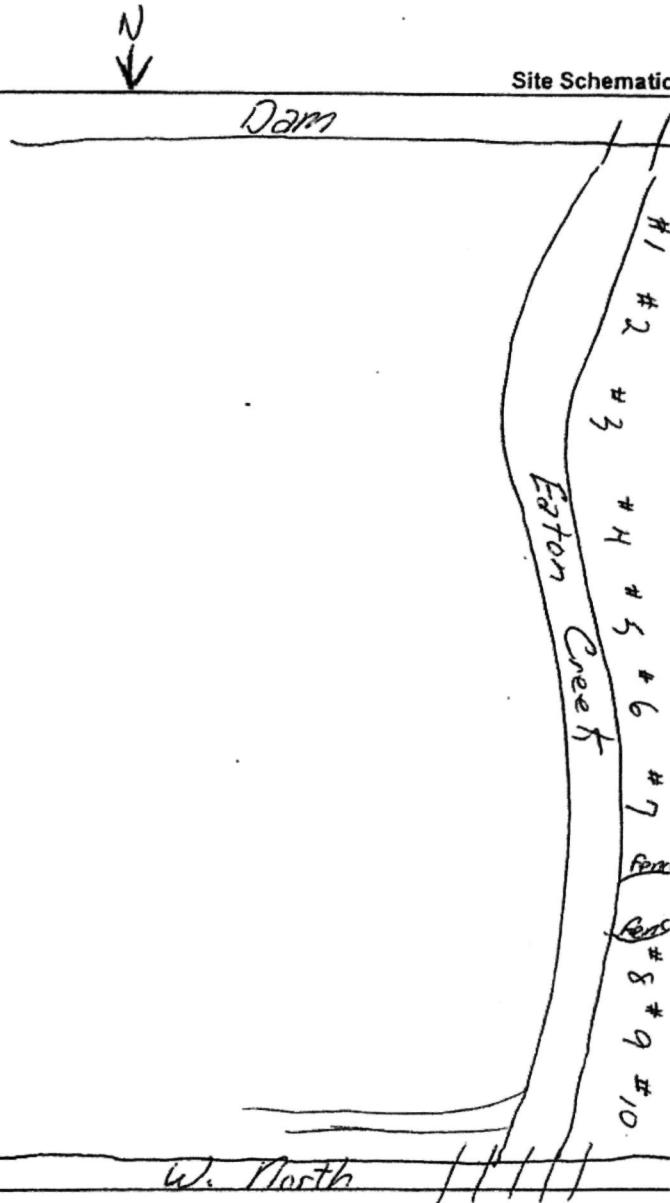
### **Soil Sample and Access Data Form**

Property	<u>Leadwood Remediation</u>	Date	<u>23 Aug 07</u>
Owner Name	<u>Northfield Dam, west of Elton Creek</u>	Phone	
Owner address if different from above			
Person Authorizing Access		Phone	
Signature		Relation to owner	

Sample ID	Sample Description		Sample Result
# 1	Leadwood Reservation	#1	486 ppm
# 2	"	#2	724 ppm
# 3	"	#3	845 ppm
# 4	"	#4	1860 ppm
# 5	"	#5	477 ppm
# 6	"	#6	428 ppm
# 7	"	#7	638 ppm
# 8	"	#8	1820 ppm
# 9	"	#9	1940 ppm
# 10	"	#10	2140 ppm

**Notes:**

**Sampling Team Initials**



## **Appendix B-2**

**Spillway Area - Missouri Highway 8 to Huntsford Road**

## Soil Sampling Data Form

Yard ID \_\_\_\_\_

Property Address Brown Prop. Eaton CreekDate 2/26/08Owner Name James Brown Phone \_\_\_\_\_

Owner address (if different from above) \_\_\_\_\_

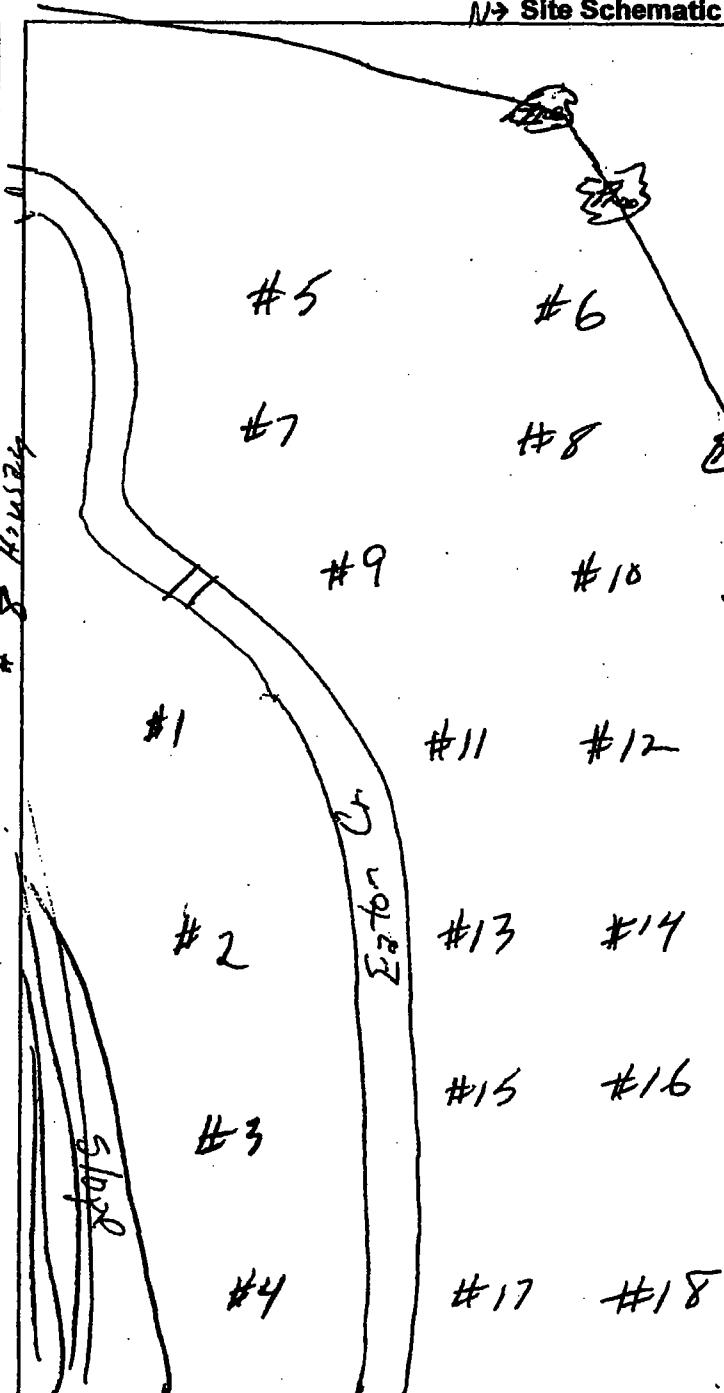
Person Authorizing Access: \_\_\_\_\_ Phone \_\_\_\_\_

Signature (optional): \_\_\_\_\_ Relation to owner \_\_\_\_\_

Sample ID	Sample Description	Sample Result
Brown Prop #1	#1	2540 ppm
" #2	#2	1620 ppm
" #3	#3	2420 ppm
" #4	#4	1960 ppm
" #5	#5	287 ppm
" #6	#6	202 ppm
" #7	#7	528 ppm
" #8	#8	507 ppm
" #9	#9	1680 ppm
" #10	#10	549 ppm
" #11	#11	1240 ppm
" #12	#12	327 ppm
" #13	#13	2350 ppm

Notes:

Brown Prop #14	#14	566 ppm
" #15	#15	2390 ppm
" #16	#16	392 ppm
" #17	#17	1580 ppm
" #18	#18	217 ppm

Sampling Team Initials: EGB

**Ty Morris**

---

**From:** Nations, Mark [mnations@doerun.com]  
**Sent:** Monday, October 08, 2007 9:39 AM  
**To:** Ty Morris  
**Subject:** FW: Soil Sample results  
**Attachments:** LW Dam West of Eaton Creek 02Oct07.pdf

---

**From:** Hopkins, Larry  
**Sent:** Thursday, October 04, 2007 7:01 AM  
**To:** Nations, Mark  
**Subject:** Soil Sample results

Mark  
Attached are the soil sample results for Eaton Creek.

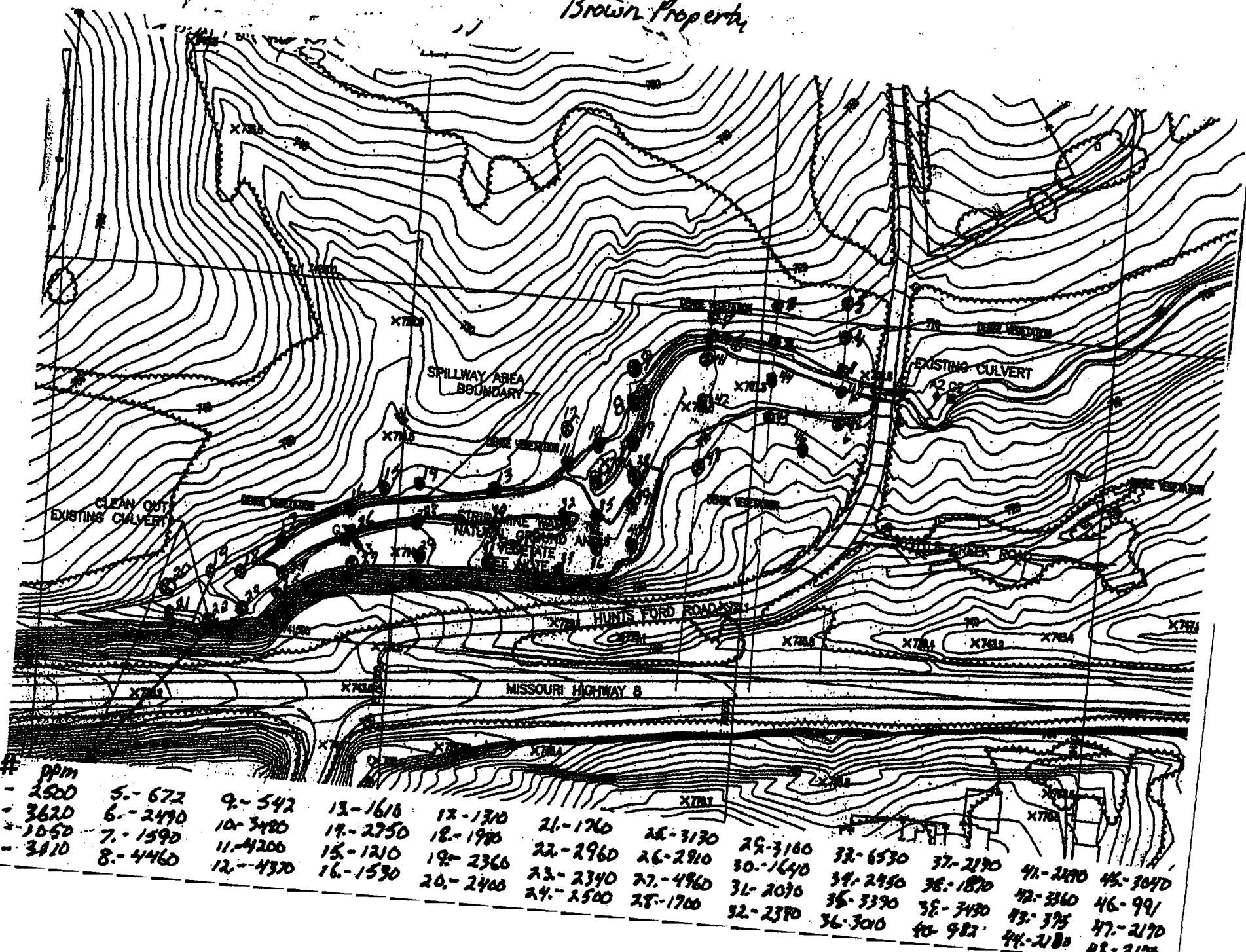
Also the results for soil samples taken at the Brown property 02Oct07.

#49--154 ppm  
#50--175 ppm  
#51--330 ppm  
#52--180 ppm  
#53--316 ppm  
#54--179 ppm  
#55--188 ppm  
#56--171 ppm  
#57--312 ppm  
#58--279 ppm  
#59--100 ppm

If you have any questions call.

Mark

Brown Property



April 04, 2007      5:38:49PM

Client:	Barr Engineering (14336)	Work Order:	NQC2197
	3236 Emerald Lane	Project Name:	Bonne Terre Mine Tailings Site 25/86-014
	Jefferson City, MO 65109	Project Nbr:	Bonne Terre Mine Tailings Site 25/86-014
Attn:	Ty Morris	P/O Nbr:	
		Date Received:	03/16/07

SAMPLE IDENTIFICATION	LAB NUMBER	COLLECTION DATE AND TIME
BTE-1st QTR-07	NQC2197-01	03/14/07 15:42
LW-10-DUP	NQC2197-02	03/15/07 09:50
LW-20-DUP	NQC2197-03	03/15/07 10:25
LW-30-DUP	NQC2197-04	03/15/07 10:55
LW-40-DUP	NQC2197-05	03/15/07 12:30
LW-48-DUP	NQC2197-06	03/15/07 13:00
Trip Blank	NQC2197-07	03/14/07 00:01

An executed copy of the chain of custody, the project quality control data, and the sample receipt form are also included as an addendum to this report. If you have any questions relating to this analytical report, please contact your Laboratory Project Manager at 1-800-765-0980. Any opinions, if expressed, are outside the scope of the Laboratory's accreditation.

This material is intended only for the use of the individual(s) or entity to whom it is addressed, and may contain information that is privileged and confidential. If you are not the intended recipient, or the employee or agent responsible for delivering this material to the intended recipient, you are hereby notified that any dissemination, distribution, or copying of this material is strictly prohibited. If you have received this material in error, please notify us immediately at 615-726-0177.

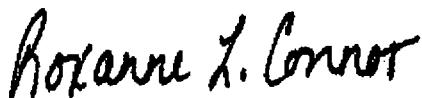
The Chain(s) of Custody, 5 pages, are included and are an integral part of this report.

These results relate only to the items tested. This report shall not be reproduced except in full and with permission of the laboratory.

Estimated uncertainty is available upon request.

This report has been electronically signed.

Report Approved By:



Roxanne Connor

Program Manager - Conventional Accounts

Client	Barr Engineering (14336)	Work Order:	NQC2197
	3236 Emerald Lane	Project Name:	Bonne Terre Mine Tailings Site 25/86-014
	Jefferson City, MO 65109	Project Number:	Bonne Terre Mine Tailings Site 25/86-014
Attn	Ty Morris	Received:	03/16/07 08:00

## ANALYTICAL REPORT

Analyte	Result	Flag	Units	MRL	Dilution Factor	Analysis Date/Time	Method	Batch
<b>Sample ID: NQC2197-01 (BTE-1st QTR-07 - Water) Sampled: 03/14/07 15:42</b>								
General Chemistry Parameters								
Alkalinity, Total (CaCO <sub>3</sub> )	326		mg/L	10.0	1	03/20/07 18:09	EPA 310.1	7033071
Ammonia as N	0.231		mg/L	0.100	1	03/26/07 19:07	EPA 350.1M	7034662
BOD - 5 Day	ND	H, L2	mg/L	2.00	1	03/21/07 23:45	EPA 405.1	7033069
Chemical Oxygen Demand	ND		mg/L	10.0	1	03/22/07 19:46	EPA 410.4	7034197
Chloride	39.3	M4	mg/L	10.0	10	03/31/07 23:37	EPA 300.0	7034666
Cyanide	ND		mg/L	0.0050	1	03/27/07 11:53	EPA 335.3	7034775
Fluoride	0.137		mg/L	0.100	1	03/27/07 02:58	EPA 300.0	7034666
Nitrate/Nitrite as N	0.288		mg/L	0.100	1	03/17/07 00:14	EPA 353.2	7033089
Oil & Grease HEM	ND		mg/L	5.21	1	03/27/07 16:46	EPA 1664A	7034867
pH	7.40	HTI	pH Units	0.100	1	03/16/07 14:07	EPA 150.1	7033035
Phenolics	ND	M2	mg/L	0.0500	1	03/27/07 10:59	EPA 420.2 M	7034774
Phosphorus	ND		mg/L	0.100	1	03/27/07 10:31	EPA 365.4	7034773
Settleable Solids	ND		mL/L/hr	0.100	1	03/16/07 11:15	EPA 160.5	7032943
Specific conductance	1260		umho/cm	10.0	1	03/19/07 16:01	120.1	7033424
Sulfate	350	M4	mg/L	10.0	10	03/31/07 23:37	EPA 300.0	7034666
Total Dissolved Solids	2020		mg/L	100	1	03/20/07 15:36	EPA 160.1	7032986
Total Organic Carbon	ND		mg/L	1.00	1	03/18/07 11:09	EPA 415.1	7033286
Total Suspended Solids	4.13		mg/L	1.33	1	03/19/07 15:17	EPA 160.2	7032987
Total Kjeldahl Nitrogen	0.152		mg/L	0.100	1	03/27/07 19:06	EPA 351.2	7034769
Total Metals by EPA Method 200.7								
Aluminum	ND		mg/L	0.100	1	03/20/07 09:18	EPA 200.7	7033322
Antimony	ND		mg/L	0.0100	1	03/20/07 09:18	EPA 200.7	7033322
Arsenic	ND		mg/L	0.0100	1	03/20/07 09:18	EPA 200.7	7033322
Barium	0.0363		mg/L	0.0100	1	03/20/07 09:18	EPA 200.7	7033322
Beryllium	ND		mg/L	0.00400	1	03/20/07 09:18	EPA 200.7	7033322
Boron	0.0643		mg/L	0.0500	1	03/20/07 09:18	EPA 200.7	7033322
Cadmium	ND		mg/L	0.00100	1	03/20/07 09:18	EPA 200.7	7033322
Calcium	145		mg/L	1.00	1	03/20/07 09:18	EPA 200.7	7033322
Chromium	ND		mg/L	0.00500	1	03/20/07 09:18	EPA 200.7	7033322
Cobalt	ND		mg/L	0.0200	1	03/20/07 09:18	EPA 200.7	7033322
Copper	ND		mg/L	0.0100	1	03/20/07 09:18	EPA 200.7	7033322
Iron	0.528		mg/L	0.0500	1	03/20/07 09:18	EPA 200.7	7033322
Lead	ND		mg/L	0.00500	1	03/20/07 09:18	EPA 200.7	7033322
Magnesium	86.5		mg/L	1.00	1	03/20/07 09:18	EPA 200.7	7033322
Manganese	0.0271		mg/L	0.0150	1	03/20/07 09:18	EPA 200.7	7033322
Molybdenum	ND		mg/L	0.0500	1	03/20/07 09:18	EPA 200.7	7033322
Nickel	0.131		mg/L	0.0100	1	03/20/07 09:18	EPA 200.7	7033322
Selenium	ND		mg/L	0.0100	1	03/20/07 09:18	EPA 200.7	7033322
Silver	ND		mg/L	0.00500	1	03/20/07 09:18	EPA 200.7	7033322
Sodium	33.5		mg/L	1.00	1	03/20/07 09:18	EPA 200.7	7033322
Thallium	ND		mg/L	0.0100	1	03/20/07 09:18	EPA 200.7	7033322
Zinc	0.287		mg/L	0.0500	1	03/20/07 09:18	EPA 200.7	7033322

Client	Barr Engineering (14336) 3236 Emerald Lane Jefferson City, MO 65109	Work Order:	NQC2197
		Project Name:	Bonne Terre Mine Tailings Site 25/86-014
		Project Number:	Bonne Terre Mine Tailings Site 25/86-014
Attn	Ty Morris	Received:	03/16/07 08:00

## ANALYTICAL REPORT

Analyte	Result	Flag	Units	MRL	Dilution Factor	Analysis Date/Time	Method	Batch
<b>Sample ID: NQC2197-01 (BTE-1st QTR-07 - Water) - cont. Sampled: 03/14/07 15:42</b>								
Hardness (Calculated) by SM2340B								
Hardness, calculated	718		mg/L	6.62	1	03/20/07 09:18	SM 2340B	[CALC]
Mercury by EPA 245.1								
Mercury	ND		mg/L	0.000200	1	03/22/07 15:06	EPA 245.1	7033571
Organochlorine Pesticides and/or PCBs by EPA Method 608								
Aldrin	ND		ug/L	0.0500	1	03/20/07 05:34	EPA 608	7033201
delta-BHC	ND		ug/L	0.0500	1	03/20/07 05:34	EPA 608	7033201
alpha-BHC	ND		ug/L	0.0500	1	03/20/07 05:34	EPA 608	7033201
beta-BHC	ND		ug/L	0.0500	1	03/20/07 05:34	EPA 608	7033201
gamma-BHC (Lindane)	ND		ug/L	0.0500	1	03/20/07 05:34	EPA 608	7033201
alpha-Chlordane	ND		ug/L	0.0500	1	03/20/07 05:34	EPA 608	7033201
gamma-Chlordane	ND		ug/L	0.0500	1	03/20/07 05:34	EPA 608	7033201
Chlordane	ND		ug/L	3.00	1	03/20/07 05:34	EPA 608	7033201
4,4'-DDD	ND		ug/L	0.0500	1	03/20/07 05:34	EPA 608	7033201
4,4'-DDE	ND		ug/L	0.0500	1	03/20/07 05:34	EPA 608	7033201
4,4'-DDT	ND		ug/L	0.0500	1	03/20/07 05:34	EPA 608	7033201
Dieldrin	ND		ug/L	0.0500	1	03/20/07 05:34	EPA 608	7033201
Endosulfan I	ND		ug/L	0.0500	1	03/20/07 05:34	EPA 608	7033201
Endosulfan II	ND		ug/L	0.0500	1	03/20/07 05:34	EPA 608	7033201
Endosulfan sulfate	ND		ug/L	0.0500	1	03/20/07 05:34	EPA 608	7033201
Endrin	ND		ug/L	0.0500	1	03/20/07 05:34	EPA 608	7033201
Heptachlor	ND		ug/L	0.0500	1	03/20/07 05:34	EPA 608	7033201
Heptachlor epoxide	ND		ug/L	0.0500	1	03/20/07 05:34	EPA 608	7033201
Methoxychlor	ND		ug/L	0.0500	1	03/20/07 05:34	EPA 608	7033201
Toxaphene	ND		ug/L	5.00	1	03/20/07 05:34	EPA 608	7033201
PCB-1016	ND		ug/L	0.500	1	03/19/07 17:34	EPA 608	7033200
PCB-1221	ND		ug/L	0.500	1	03/19/07 17:34	EPA 608	7033200
PCB-1232	ND		ug/L	0.500	1	03/19/07 17:34	EPA 608	7033200
PCB-1242	ND		ug/L	0.500	1	03/19/07 17:34	EPA 608	7033200
PCB-1248	ND		ug/L	0.500	1	03/19/07 17:34	EPA 608	7033200
PCB-1254	ND		ug/L	0.500	1	03/19/07 17:34	EPA 608	7033200
PCB-1260	ND		ug/L	0.500	1	03/19/07 17:34	EPA 608	7033200
Surr: Tetrachloro-meta-xylene (44-131%)	82 %					03/19/07 17:34	EPA 608	7033200
Surr: Tetrachloro-meta-xylene (34-165%)	76 %					03/20/07 05:34	EPA 608	7033201
Surr: Decachlorobiphenyl (13-153%)	83 %					03/20/07 05:34	EPA 608	7033201
Surr: Decachlorobiphenyl (24-110%)	80 %					03/19/07 17:34	EPA 608	7033200
Purgeable Organic Compounds by EPA Method 624								
Acetone	ND		ug/L	50.0	1	03/21/07 13:42	EPA 624	7033471
Acrolein	ND		ug/L	50.0	1	03/21/07 13:42	EPA 624	7033471
Acrylonitrile	ND		ug/L	10.0	1	03/21/07 13:42	EPA 624	7033471
Benzene	ND		ug/L	1.00	1	03/21/07 13:42	EPA 624	7033471
Bromobenzene	ND		ug/L	1.00	1	03/21/07 13:42	EPA 624	7033471
Bromoform	ND		ug/L	1.00	1	03/21/07 13:42	EPA 624	7033471

Client	Barr Engineering (14336) 3236 Emerald Lane Jefferson City, MO 65109	Work Order:	NQC2197
		Project Name:	Bonne Terre Mine Tailings Site 25/86-014
		Project Number:	Bonne Terre Mine Tailings Site 25/86-014
Attn	Ty Morris	Received:	03/16/07 08:00

## ANALYTICAL REPORT

Analyte	Result	Flag	Units	MRL	Dilution Factor	Analysis Date/Time	Method	Batch
<b>Sample ID: NQC2197-01 (BTE-1st QTR-07 - Water) - cont. Sampled: 03/14/07 15:42</b>								
Purgeable Organic Compounds by EPA Method 624 - cont.								
Bromodichloromethane	ND		ug/L	1.00	1	03/21/07 13:42	EPA 624	7033471
Bromoform	ND		ug/L	1.00	1	03/21/07 13:42	EPA 624	7033471
Bromomethane	ND		ug/L	1.00	1	03/21/07 13:42	EPA 624	7033471
n-Butylbenzene	ND		ug/L	1.00	1	03/21/07 13:42	EPA 624	7033471
sec-Butylbenzene	ND		ug/L	1.00	1	03/21/07 13:42	EPA 624	7033471
tert-Butylbenzene	ND		ug/L	1.00	1	03/21/07 13:42	EPA 624	7033471
Carbon disulfide	ND		ug/L	1.00	1	03/21/07 13:42	EPA 624	7033471
Carbon Tetrachloride	ND		ug/L	1.00	1	03/21/07 13:42	EPA 624	7033471
Chlorobenzene	ND		ug/L	1.00	1	03/21/07 13:42	EPA 624	7033471
Chlorodibromomethane	ND		ug/L	1.00	1	03/21/07 13:42	EPA 624	7033471
Chloroethane	ND		ug/L	1.00	1	03/21/07 13:42	EPA 624	7033471
2-Chloroethylvinyl ether	ND		ug/L	10.0	1	03/21/07 13:42	EPA 624	7033471
Chloroform	ND		ug/L	1.00	1	03/21/07 13:42	EPA 624	7033471
Chloromethane	ND		ug/L	1.00	1	03/21/07 13:42	EPA 624	7033471
2-Chlorotoluene	ND		ug/L	1.00	1	03/21/07 13:42	EPA 624	7033471
4-Chlorotoluene	ND		ug/L	1.00	1	03/21/07 13:42	EPA 624	7033471
1,2-Dibromo-3-chloropropane	ND		ug/L	5.00	1	03/21/07 13:42	EPA 624	7033471
1,2-Dibromoethane (EDB)	ND		ug/L	1.00	1	03/21/07 13:42	EPA 624	7033471
Dibromomethane	ND		ug/L	1.00	1	03/21/07 13:42	EPA 624	7033471
1,2-Dichlorobenzene	ND		ug/L	1.00	1	03/21/07 13:42	EPA 624	7033471
1,4-Dichlorobenzene	ND		ug/L	1.00	1	03/21/07 13:42	EPA 624	7033471
1,3-Dichlorobenzene	ND		ug/L	1.00	1	03/21/07 13:42	EPA 624	7033471
Dichlorodifluoromethane	ND		ug/L	1.00	1	03/21/07 13:42	EPA 624	7033471
1,2-Dichloroethane	ND		ug/L	1.00	1	03/21/07 13:42	EPA 624	7033471
1,1-Dichloroethane	ND		ug/L	1.00	1	03/21/07 13:42	EPA 624	7033471
cis-1,2-Dichloroethene	ND		ug/L	1.00	1	03/21/07 13:42	EPA 624	7033471
trans-1,2-Dichloroethene	ND		ug/L	1.00	1	03/21/07 13:42	EPA 624	7033471
1,2-Dichloroethene (total)	ND		ug/L	1.00	1	03/21/07 13:42	EPA 624	7033471
1,1-Dichloroethene	ND		ug/L	1.00	1	03/21/07 13:42	EPA 624	7033471
1,2-Dichloropropane	ND		ug/L	1.00	1	03/21/07 13:42	EPA 624	7033471
1,3-Dichloropropane	ND		ug/L	1.00	1	03/21/07 13:42	EPA 624	7033471
2,2-Dichloropropane	ND		ug/L	1.00	1	03/21/07 13:42	EPA 624	7033471
cis-1,3-Dichloropropene	ND		ug/L	1.00	1	03/21/07 13:42	EPA 624	7033471
trans-1,3-Dichloropropene	ND		ug/L	1.00	1	03/21/07 13:42	EPA 624	7033471
1,1-Dichloropropene	ND		ug/L	1.00	1	03/21/07 13:42	EPA 624	7033471
Ethylbenzene	ND		ug/L	1.00	1	03/21/07 13:42	EPA 624	7033471
Hexachlorobutadiene	ND		ug/L	2.00	1	03/21/07 13:42	EPA 624	7033471
Isopropylbenzene	ND		ug/L	1.00	1	03/21/07 13:42	EPA 624	7033471
p-Isopropyltoluene	ND		ug/L	1.00	1	03/21/07 13:42	EPA 624	7033471
Methyl tert-Butyl Ether	ND		ug/L	1.00	1	03/21/07 13:42	EPA 624	7033471
Methylene Chloride	ND		ug/L	5.00	1	03/21/07 13:42	EPA 624	7033471
4-Methyl-2-pentanone	ND		ug/L	5.00	1	03/21/07 13:42	EPA 624	7033471
Naphthalene	ND		ug/L	5.00	1	03/21/07 13:42	EPA 624	7033471

Client	Barr Engineering (14336) 3236 Emerald Lane Jefferson City, MO 65109	Work Order:	NQC2197
		Project Name:	Bonne Terre Mine Tailings Site 25/86-014
		Project Number:	Bonne Terre Mine Tailings Site 25/86-014
Attn	Ty Morris	Received:	03/16/07 08:00

## ANALYTICAL REPORT

Analyte	Result	Flag	Units	MRL	Dilution Factor	Analysis Date/Time	Method	Batch
<b>Sample ID: NQC2197-01 (BTE-1st QTR-07 - Water) - cont. Sampled: 03/14/07 15:42</b>								
Purgeable Organic Compounds by EPA Method 624 - cont.								
n-Propylbenzene	ND		ug/L	1.00	1	03/21/07 13:42	EPA 624	7033471
Styrene	ND		ug/L	1.00	1	03/21/07 13:42	EPA 624	7033471
1,1,1,2-Tetrachloroethane	ND		ug/L	1.00	1	03/21/07 13:42	EPA 624	7033471
1,1,2,2-Tetrachloroethane	ND		ug/L	1.00	1	03/21/07 13:42	EPA 624	7033471
Tetrachloroethene	ND		ug/L	1.00	1	03/21/07 13:42	EPA 624	7033471
Toluene	ND		ug/L	1.00	1	03/21/07 13:42	EPA 624	7033471
1,2,3-Trichlorobenzene	ND		ug/L	1.00	1	03/21/07 13:42	EPA 624	7033471
1,2,4-Trichlorobenzene	ND		ug/L	1.00	1	03/21/07 13:42	EPA 624	7033471
1,1,2-Trichloroethane	ND		ug/L	1.00	1	03/21/07 13:42	EPA 624	7033471
1,1,1-Trichloroethane	ND		ug/L	1.00	1	03/21/07 13:42	EPA 624	7033471
Trichloroethene	ND		ug/L	1.00	1	03/21/07 13:42	EPA 624	7033471
Trichlorofluoromethane	ND		ug/L	1.00	1	03/21/07 13:42	EPA 624	7033471
1,2,3-Trichloropropane	ND		ug/L	1.00	1	03/21/07 13:42	EPA 624	7033471
1,1,1-Trichlorotrifluoroethane	ND		ug/L	2.00	1	03/21/07 13:42	EPA 624	7033471
1,3,5-Trimethylbenzene	ND		ug/L	1.00	1	03/21/07 13:42	EPA 624	7033471
1,2,4-Trimethylbenzene	ND		ug/L	1.00	1	03/21/07 13:42	EPA 624	7033471
Vinyl acetate	ND		ug/L	10.0	1	03/21/07 13:42	EPA 624	7033471
Vinyl chloride	ND		ug/L	1.00	1	03/21/07 13:42	EPA 624	7033471
o-Xylene	ND		ug/L	1.00	1	03/21/07 13:42	EPA 624	7033471
m,p-Xylene	ND		ug/L	1.00	1	03/21/07 13:42	EPA 624	7033471
Xylenes, total	ND		ug/L	2.00	1	03/21/07 13:42	EPA 624	7033471
Bis(chloromethyl)ether	ND		ug/L	2.00	1	03/21/07 13:42	EPA 624 Modified	7033471
<i>Sur: 1,2-Dichloroethane-d4 (62-142%)</i>	107 %					03/21/07 13:42	EPA 624	7033471
<i>Sur: Dibromofluoromethane (78-123%)</i>	101 %					03/21/07 13:42	EPA 624	7033471
<i>Sur: Toluene-d8 (79-120%)</i>	92 %					03/21/07 13:42	EPA 624	7033471
<i>Sur: 4-Bromofluorobenzene (75-133%)</i>	106 %					03/21/07 13:42	EPA 624	7033471
Acid and Base/Neutral Extractables by EPA Method 625								
Acenaphthene	ND		ug/L	9.43	1	03/23/07 12:02	EPA 625	7033234
Acenaphthylene	ND		ug/L	9.43	1	03/23/07 12:02	EPA 625	7033234
Aniline	ND		ug/L	9.43	1	03/23/07 12:02	EPA 625	7033234
Anthracene	ND		ug/L	9.43	1	03/23/07 12:02	EPA 625	7033234
Benzidine	ND	L2	ug/L	47.2	1	03/26/07 06:52	EPA 625	7033234
Benzo (a) anthracene	ND		ug/L	9.43	1	03/23/07 12:02	EPA 625	7033234
Benzo (a) pyrene	ND		ug/L	9.43	1	03/23/07 12:02	EPA 625	7033234
Benzo (b) fluoranthene	ND		ug/L	9.43	1	03/23/07 12:02	EPA 625	7033234
Benzo (g,h,i) perylene	ND		ug/L	9.43	1	03/23/07 12:02	EPA 625	7033234
Benzo (k) fluoranthene	ND		ug/L	9.43	1	03/23/07 12:02	EPA 625	7033234
4-Bromophenyl phenyl ether	ND		ug/L	9.43	1	03/23/07 12:02	EPA 625	7033234
Butyl benzyl phthalate	ND		ug/L	9.43	1	03/23/07 12:02	EPA 625	7033234
4-Chloroaniline	ND		ug/L	9.43	1	03/23/07 12:02	EPA 625	7033234
Carbazole	ND		ug/L	9.43	1	03/23/07 12:02	EPA 625	7033234
4-Chloro-3-methylphenol	ND		ug/L	9.43	1	03/23/07 12:02	EPA 625	7033234
Bis(2-chloroethoxy)methane	ND		ug/L	9.43	1	03/23/07 12:02	EPA 625	7033234

Client	Barr Engineering (14336)	Work Order:	NQC2197
	3236 Emerald Lane	Project Name:	Bonne Terre Mine Tailings Site 25/86-014
	Jefferson City, MO 65109	Project Number:	Bonne Terre Mine Tailings Site 25/86-014
Attn	Ty Morris	Received:	03/16/07 08:00

## ANALYTICAL REPORT

Analyte	Result	Flag	Units	MRL	Dilution Factor	Analysis Date/Time	Method	Batch
<b>Sample ID: NQC2197-01 (BTE-1st QTR-07 - Water) - cont. Sampled: 03/14/07 15:42</b>								
Acid and Base/Neutral Extractables by EPA Method 625 - cont.								
Benzoic acid	ND	CF2, L2	ug/L	47.2	1	03/23/07 12:02	EPA 625	7033234
Benzyl alcohol	ND		ug/L	47.2	1	03/23/07 12:02	EPA 625	7033234
Bis(2-chloroethyl)ether	ND		ug/L	9.43	1	03/23/07 12:02	EPA 625	7033234
Bis(2-chloroisopropyl)ether	ND		ug/L	9.43	1	03/23/07 12:02	EPA 625	7033234
2-Chloronaphthalene	ND		ug/L	9.43	1	03/23/07 12:02	EPA 625	7033234
2-Chlorophenol	ND		ug/L	9.43	1	03/23/07 12:02	EPA 625	7033234
4-Chlorophenyl phenyl ether	ND		ug/L	9.43	1	03/23/07 12:02	EPA 625	7033234
Chrysene	ND		ug/L	9.43	1	03/23/07 12:02	EPA 625	7033234
Decane	ND		ug/L	9.43	1	03/23/07 12:02	EPA 625	7033234
Dibenz (a,h)anthracene	ND		ug/L	9.43	1	03/23/07 12:02	EPA 625	7033234
Di-n-butyl phthalate	ND		ug/L	9.43	1	03/23/07 12:02	EPA 625	7033234
2,3-Dichloroaniline	ND		ug/L	9.43	1	03/23/07 12:02	EPA 625	7033234
1,3-Dichlorobenzene	ND		ug/L	9.43	1	03/23/07 12:02	EPA 625	7033234
1,4-Dichlorobenzene	ND		ug/L	9.43	1	03/23/07 12:02	EPA 625	7033234
1,2-Dichlorobenzene	ND		ug/L	9.43	1	03/23/07 12:02	EPA 625	7033234
3,3-Dichlorobenzidine	ND		ug/L	9.43	1	03/23/07 12:02	EPA 625	7033234
2,4-Dichlorophenol	ND		ug/L	9.43	1	03/23/07 12:02	EPA 625	7033234
Diethyl phthalate	ND		ug/L	9.43	1	03/23/07 12:02	EPA 625	7033234
2,4-Dimethylphenol	ND		ug/L	9.43	1	03/23/07 12:02	EPA 625	7033234
Dimethyl phthalate	ND		ug/L	9.43	1	03/23/07 12:02	EPA 625	7033234
4,6-Dinitro-2-methylphenol	ND		ug/L	23.6	1	03/23/07 12:02	EPA 625	7033234
2,4-Dinitrophenol	ND		ug/L	23.6	1	03/23/07 12:02	EPA 625	7033234
2,4-Dinitrotoluene	ND		ug/L	9.43	1	03/23/07 12:02	EPA 625	7033234
2,6-Dinitrotoluene	ND		ug/L	9.43	1	03/23/07 12:02	EPA 625	7033234
Di-n-octyl phthalate	ND		ug/L	9.43	1	03/23/07 12:02	EPA 625	7033234
1,2-Diphenylhydrazine	ND		ug/L	9.43	1	03/23/07 12:02	EPA 625	7033234
Bis(2-ethylhexyl)phthalate	ND		ug/L	9.43	1	03/23/07 12:02	EPA 625	7033234
Fluoranthene	ND		ug/L	9.43	1	03/23/07 12:02	EPA 625	7033234
Fluorene	ND		ug/L	9.43	1	03/23/07 12:02	EPA 625	7033234
Hexachlorobenzene	ND		ug/L	9.43	1	03/23/07 12:02	EPA 625	7033234
Hexachlorobutadiene	ND		ug/L	9.43	1	03/23/07 12:02	EPA 625	7033234
Hexachlorocyclopentadiene	ND		ug/L	9.43	1	03/23/07 12:02	EPA 625	7033234
Hexachloroethane	ND		ug/L	9.43	1	03/23/07 12:02	EPA 625	7033234
Indeno (1,2,3-cd) pyrene	ND		ug/L	9.43	1	03/23/07 12:02	EPA 625	7033234
Isophorone	ND		ug/L	9.43	1	03/23/07 12:02	EPA 625	7033234
2-Methylphenol	ND		ug/L	9.43	1	03/23/07 12:02	EPA 625	7033234
3,4-Methylphenol	ND	L2	ug/L	9.43	1	03/23/07 12:02	EPA 625	7033234
Naphthalene	ND		ug/L	9.43	1	03/23/07 12:02	EPA 625	7033234
Nitrobenzene	ND		ug/L	9.43	1	03/23/07 12:02	EPA 625	7033234
2-Nitrophenol	ND		ug/L	9.43	1	03/23/07 12:02	EPA 625	7033234
4-Nitrophenol	ND		ug/L	23.6	1	03/23/07 12:02	EPA 625	7033234
N-Nitrosodimethylamine	ND		ug/L	9.43	1	03/23/07 12:02	EPA 625	7033234
N-Nitrosodiphenylamine	ND		ug/L	9.43	1	03/23/07 12:02	EPA 625	7033234

Client	Barr Engineering (14336) 3236 Emerald Lane Jefferson City, MO 65109	Work Order:	NQC2197
		Project Name:	Bonne Terre Mine Tailings Site 25/86-014
		Project Number:	Bonne Terre Mine Tailings Site 25/86-014
Attn	Ty Morris	Received:	03/16/07 08:00

## ANALYTICAL REPORT

Analyte	Result	Flag	Units	MRL	Dilution Factor	Analysis Date/Time	Method	Batch
<b>Sample ID: NQC2197-01 (BTE-1st QTR-07 - Water) - cont. Sampled: 03/14/07 15:42</b>								
Acid and Base/Neutral Extractables by EPA Method 625 - cont.								
N-Nitrosodi-n-propylamine	ND		ug/L	9.43	1	03/23/07 12:02	EPA 625	7033234
Pentachlorophenol	ND		ug/L	23.6	1	03/23/07 12:02	EPA 625	7033234
2-Methylnaphthalene	ND		ug/L	9.43	1	03/23/07 12:02	EPA 625	7033234
Phenanthrene	ND		ug/L	9.43	1	03/23/07 12:02	EPA 625	7033234
Phenol	ND		ug/L	9.43	1	03/23/07 12:02	EPA 625	7033234
Pyrene	ND		ug/L	9.43	1	03/23/07 12:02	EPA 625	7033234
1,2,4-Trichlorobenzene	ND		ug/L	9.43	1	03/23/07 12:02	EPA 625	7033234
2,4,6-Trichlorophenol	ND		ug/L	9.43	1	03/23/07 12:02	EPA 625	7033234
Dibenzofuran	ND		ug/L	9.43	1	03/23/07 12:02	EPA 625	7033234
2,4,5-Trichlorophenol	ND		ug/L	23.6	1	03/23/07 12:02	EPA 625	7033234
Surr: Terphenyl-d14 (32-151%)	73 %					03/23/07 12:02	EPA 625	7033234
Surr: 2,4,6-Tribromophenol (26-148%)	68 %					03/23/07 12:02	EPA 625	7033234
Surr: Phenol-d5 (10-94%)	30 %					03/23/07 12:02	EPA 625	7033234
Surr: 2-Fluorobiphenyl (23-130%)	66 %					03/23/07 12:02	EPA 625	7033234
Surr: 2-Fluorophenol (10-97%)	42 %					03/23/07 12:02	EPA 625	7033234
Surr: Nitrobenzene-d5 (38-136%)	69 %					03/23/07 12:02	EPA 625	7033234

### Sample ID: NQC2197-02 (LW-10-DUP - Soil) Sampled: 03/15/07 09:50

Total Metals by EPA Method 6010B

Cadmium	87.7	MHA	mg/kg	0.982	1	03/21/07 22:49	SW846 6010B	7033499
Lead	4480	MHA	mg/kg	9.82	10	03/22/07 10:52	SW846 6010B	7033499
Zinc	5110	MHA	mg/kg	98.2	10	03/22/07 10:52	SW846 6010B	7033499

### Sample ID: NQC2197-03 (LW-20-DUP - Soil) Sampled: 03/15/07 10:25

Total Metals by EPA Method 6010B

Cadmium	35.6		mg/kg	0.963	1	03/21/07 23:36	SW846 6010B	7033499
Lead	1230		mg/kg	0.963	1	03/21/07 23:36	SW846 6010B	7033499
Zinc	3520		mg/kg	96.3	10	03/22/07 11:05	SW846 6010B	7033499

### Sample ID: NQC2197-04 (LW-30-DUP - Soil) Sampled: 03/15/07 10:55

Total Metals by EPA Method 6010B

Cadmium	37.7		mg/kg	0.956	1	03/21/07 23:40	SW846 6010B	7033499
Lead	1510		mg/kg	0.956	1	03/21/07 23:40	SW846 6010B	7033499
Zinc	4210		mg/kg	95.6	10	03/22/07 11:10	SW846 6010B	7033499

### Sample ID: NQC2197-05 (LW-40-DUP - Soil) Sampled: 03/15/07 12:30

Total Metals by EPA Method 6010B

Cadmium	5.85		mg/kg	0.960	1	03/21/07 23:45	SW846 6010B	7033499
Lead	830		mg/kg	0.960	1	03/21/07 23:45	SW846 6010B	7033499
Zinc	347		mg/kg	9.60	1	03/21/07 23:45	SW846 6010B	7033499

### Sample ID: NQC2197-06 (LW-48-DUP - Soil) Sampled: 03/15/07 13:00

Total Metals by EPA Method 6010B

Cadmium	19.2		mg/kg	0.958	1	03/21/07 23:49	SW846 6010B	7033499
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Client	Barr Engineering (14336) 3236 Emerald Lane Jefferson City, MO 65109	Work Order:	NQC2197
		Project Name:	Bonne Terre Mine Tailings Site 25/86-014
		Project Number:	Bonne Terre Mine Tailings Site 25/86-014
Attn	Ty Morris	Received:	03/16/07 08:00

## ANALYTICAL REPORT

Analyte	Result	Flag	Units	MRL	Dilution Factor	Analysis Date/Time	Method	Batch
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**Sample ID: NQC2197-06 (LW-48-DUP - Soil) - cont. Sampled: 03/15/07 13:00**

Total Metals by EPA Method 6010B - cont.

Lead	1430	mg/kg	0.958	1	03/21/07 23:49	SW846 6010B	7033499
Zinc	999	mg/kg	9.58	1	03/21/07 23:49	SW846 6010B	7033499

**Sample ID: NQC2197-07 (Trip Blank - Water) Sampled: 03/14/07 00:01**

Purgeable Organic Compounds by EPA Method 624

Acetone	ND	ug/L	50.0	1	03/21/07 12:48	EPA 624	7033471
Acrolein	ND	ug/L	50.0	1	03/21/07 12:48	EPA 624	7033471
Acrylonitrile	ND	ug/L	10.0	1	03/21/07 12:48	EPA 624	7033471
Benzene	ND	ug/L	1.00	1	03/21/07 12:48	EPA 624	7033471
Bromobenzene	ND	ug/L	1.00	1	03/21/07 12:48	EPA 624	7033471
Bromochloromethane	ND	ug/L	1.00	1	03/21/07 12:48	EPA 624	7033471
Bromodichloromethane	ND	ug/L	1.00	1	03/21/07 12:48	EPA 624	7033471
Bromoform	ND	ug/L	1.00	1	03/21/07 12:48	EPA 624	7033471
Bromomethane	ND	ug/L	1.00	1	03/21/07 12:48	EPA 624	7033471
n-Butylbenzene	ND	ug/L	1.00	1	03/21/07 12:48	EPA 624	7033471
sec-Butylbenzene	ND	ug/L	1.00	1	03/21/07 12:48	EPA 624	7033471
tert-Butylbenzene	ND	ug/L	1.00	1	03/21/07 12:48	EPA 624	7033471
Carbon disulfide	ND	ug/L	1.00	1	03/21/07 12:48	EPA 624	7033471
Carbon Tetrachloride	ND	ug/L	1.00	1	03/21/07 12:48	EPA 624	7033471
Chlorobenzene	ND	ug/L	1.00	1	03/21/07 12:48	EPA 624	7033471
Chlorodibromomethane	ND	ug/L	1.00	1	03/21/07 12:48	EPA 624	7033471
Chloroethane	ND	ug/L	1.00	1	03/21/07 12:48	EPA 624	7033471
2-Chloroethylvinyl ether	ND	ug/L	10.0	1	03/21/07 12:48	EPA 624	7033471
Chloroform	ND	ug/L	1.00	1	03/21/07 12:48	EPA 624	7033471
Chloromethane	ND	ug/L	1.00	1	03/21/07 12:48	EPA 624	7033471
2-Chlorotoluene	ND	ug/L	1.00	1	03/21/07 12:48	EPA 624	7033471
4-Chlorotoluene	ND	ug/L	1.00	1	03/21/07 12:48	EPA 624	7033471
1,2-Dibromo-3-chloropropane	ND	ug/L	5.00	1	03/21/07 12:48	EPA 624	7033471
1,2-Dibromoethane (EDB)	ND	ug/L	1.00	1	03/21/07 12:48	EPA 624	7033471
Dibromomethane	ND	ug/L	1.00	1	03/21/07 12:48	EPA 624	7033471
1,2-Dichlorobenzene	ND	ug/L	1.00	1	03/21/07 12:48	EPA 624	7033471
1,4-Dichlorobenzene	ND	ug/L	1.00	1	03/21/07 12:48	EPA 624	7033471
1,3-Dichlorobenzene	ND	ug/L	1.00	1	03/21/07 12:48	EPA 624	7033471
Dichlorodifluoromethane	ND	ug/L	1.00	1	03/21/07 12:48	EPA 624	7033471
1,2-Dichloroethane	ND	ug/L	1.00	1	03/21/07 12:48	EPA 624	7033471
1,1-Dichloroethane	ND	ug/L	1.00	1	03/21/07 12:48	EPA 624	7033471
cis-1,2-Dichloroethene	ND	ug/L	1.00	1	03/21/07 12:48	EPA 624	7033471
trans-1,2-Dichloroethene	ND	ug/L	1.00	1	03/21/07 12:48	EPA 624	7033471
1,2-Dichloroethene (total)	ND	ug/L	1.00	1	03/21/07 12:48	EPA 624	7033471
1,1-Dichloroethene	ND	ug/L	1.00	1	03/21/07 12:48	EPA 624	7033471
1,2-Dichloropropane	ND	ug/L	1.00	1	03/21/07 12:48	EPA 624	7033471
1,3-Dichloropropane	ND	ug/L	1.00	1	03/21/07 12:48	EPA 624	7033471
2,2-Dichloropropane	ND	ug/L	1.00	1	03/21/07 12:48	EPA 624	7033471

Client	Barr Engineering (14336)	Work Order:	NQC2197
	3236 Emerald Lane	Project Name:	Bonne Terre Mine Tailings Site 25/86-014
	Jefferson City, MO 65109	Project Number:	Bonne Terre Mine Tailings Site 25/86-014
Attn	Ty Morris	Received:	03/16/07 08:00

## ANALYTICAL REPORT

Analyte	Result	Flag	Units	MRL	Dilution Factor	Analysis Date/Time	Method	Batch
<b>Sample ID: NQC2197-07 (Trip Blank - Water) - cont. Sampled: 03/14/07 00:01</b>								
Purgeable Organic Compounds by EPA Method 624 - cont.								
cis-1,3-Dichloropropene	ND		ug/L	1.00	1	03/21/07 12:48	EPA 624	7033471
trans-1,3-Dichloropropene	ND		ug/L	1.00	1	03/21/07 12:48	EPA 624	7033471
1,1-Dichloropropene	ND		ug/L	1.00	1	03/21/07 12:48	EPA 624	7033471
Ethylbenzene	ND		ug/L	1.00	1	03/21/07 12:48	EPA 624	7033471
Hexachlorobutadiene	ND		ug/L	2.00	1	03/21/07 12:48	EPA 624	7033471
Isopropylbenzene	ND		ug/L	1.00	1	03/21/07 12:48	EPA 624	7033471
p-Isopropyltoluene	ND		ug/L	1.00	1	03/21/07 12:48	EPA 624	7033471
Methyl tert-Butyl Ether	ND		ug/L	1.00	1	03/21/07 12:48	EPA 624	7033471
Methylene Chloride	ND		ug/L	5.00	1	03/21/07 12:48	EPA 624	7033471
4-Methyl-2-pentanone	ND		ug/L	5.00	1	03/21/07 12:48	EPA 624	7033471
Naphthalene	ND		ug/L	5.00	1	03/21/07 12:48	EPA 624	7033471
n-Propylbenzene	ND		ug/L	1.00	1	03/21/07 12:48	EPA 624	7033471
Styrene	ND		ug/L	1.00	1	03/21/07 12:48	EPA 624	7033471
1,1,1,2-Tetrachloroethane	ND		ug/L	1.00	1	03/21/07 12:48	EPA 624	7033471
1,1,2,2-Tetrachloroethane	ND		ug/L	1.00	1	03/21/07 12:48	EPA 624	7033471
Tetrachloroethene	ND		ug/L	1.00	1	03/21/07 12:48	EPA 624	7033471
Toluene	ND		ug/L	1.00	1	03/21/07 12:48	EPA 624	7033471
1,2,3-Trichlorobenzene	ND		ug/L	1.00	1	03/21/07 12:48	EPA 624	7033471
1,2,4-Trichlorobenzene	ND		ug/L	1.00	1	03/21/07 12:48	EPA 624	7033471
1,1,2-Trichloroethane	ND		ug/L	1.00	1	03/21/07 12:48	EPA 624	7033471
1,1,1-Trichloroethane	ND		ug/L	1.00	1	03/21/07 12:48	EPA 624	7033471
Trichloroethene	ND		ug/L	1.00	1	03/21/07 12:48	EPA 624	7033471
Trichlorofluoromethane	ND		ug/L	1.00	1	03/21/07 12:48	EPA 624	7033471
1,2,3-Trichloropropane	ND		ug/L	1.00	1	03/21/07 12:48	EPA 624	7033471
1,1,1-Trichlorotrifluoroethane	ND		ug/L	2.00	1	03/21/07 12:48	EPA 624	7033471
1,3,5-Trimethylbenzene	ND		ug/L	1.00	1	03/21/07 12:48	EPA 624	7033471
1,2,4-Trimethylbenzene	ND		ug/L	1.00	1	03/21/07 12:48	EPA 624	7033471
Vinyl acetate	ND		ug/L	10.0	1	03/21/07 12:48	EPA 624	7033471
Vinyl chloride	ND		ug/L	1.00	1	03/21/07 12:48	EPA 624	7033471
o-Xylene	ND		ug/L	1.00	1	03/21/07 12:48	EPA 624	7033471
m,p-Xylene	ND		ug/L	1.00	1	03/21/07 12:48	EPA 624	7033471
Xylenes, total	ND		ug/L	2.00	1	03/21/07 12:48	EPA 624	7033471
Bis(chloromethyl)ether	ND		ug/L	2.00	1	03/21/07 12:48	EPA 624 Modified	7033471
Surr: 1,2-Dichloroethane-d4 (62-142%)	105 %					03/21/07 12:48	EPA 624	7033471
Surr: Dibromofluoromethane (78-123%)	102 %					03/21/07 12:48	EPA 624	7033471
Surr: Toluene-d8 (79-120%)	93 %					03/21/07 12:48	EPA 624	7033471
Surr: 4-Bromofluorobenzene (75-133%)	104 %					03/21/07 12:48	EPA 624	7033471

Client	Barr Engineering (14336) 3236 Emerald Lane Jefferson City, MO 65109	Work Order:	NQC2197
		Project Name:	Bonne Terre Mine Tailings Site 25/86-014
		Project Number:	Bonne Terre Mine Tailings Site 25/86-014
Attn	Ty Morris	Received:	03/16/07 08:00

### SAMPLE EXTRACTION DATA

Parameter	Batch	Lab Number	Wt/Vol Extracted	Extracted Vol	Date	Analyst	Extraction Method
<b>Acid and Base/Neutral Extractables by EPA Method 625</b>							
EPA 625	7033234	NQC2197-01	1060.00	1.00	03/20/07 08:50	BJM	EPA 625
EPA 625	7034730	NQC2197-01RE1	1050.00	1.00	03/26/07 14:14	MSR	EPA 625
EPA 625	7040082	NQC2197-01RE2	1065.00	1.00	04/02/07 11:00	MSR	EPA 3510C
<b>General Chemistry Parameters</b>							
EPA 405.1	7033069	NQC2197-01	300.00	300.00	03/17/07 00:25	JTH	BOD/CBOD
<b>Mercury by EPA 245.1</b>							
EPA 245.1	7033571	NQC2197-01	30.00	30.00	03/20/07 10:42	LTB	EPA 245.1
<b>Organochlorine Pesticides and/or PCBs by EPA Method 608</b>							
EPA 608	7033201	NQC2197-01	500.00	5.00	03/19/07 07:04	BJM	EPA 608
EPA 608	7033200	NQC2197-01	500.00	2.00	03/19/07 07:04	BJM	EPA 608
<b>Total Metals by EPA Method 200.7</b>							
EPA 200.7	7033322	NQC2197-01	50.00	50.00	03/19/07 07:31	JMR	EPA 200.7
EPA 200.7	7033322	NQC2197-01	50.00	50.00	03/19/07 07:31	JMR	EPA 200.7
EPA 200.7	7033322	NQC2197-01	50.00	50.00	03/19/07 07:31	JMR	EPA 200.7
EPA 200.7	7033322	NQC2197-01	50.00	50.00	03/19/07 07:31	JMR	EPA 200.7
EPA 200.7	7033322	NQC2197-01	50.00	50.00	03/19/07 07:31	JMR	EPA 200.7
EPA 200.7	7033322	NQC2197-01	50.00	50.00	03/19/07 07:31	JMR	EPA 200.7
EPA 200.7	7033322	NQC2197-01	50.00	50.00	03/19/07 07:31	RDS	EPA 200.7
EPA 200.7	7033322	NQC2197-01	50.00	50.00	03/19/07 07:31	JMR	EPA 200.7
EPA 200.7	7033322	NQC2197-01	50.00	50.00	03/19/07 07:31	JMR	EPA 200.7
EPA 200.7	7033322	NQC2197-01	50.00	50.00	03/19/07 07:31	JMR	EPA 200.7
EPA 200.7	7033322	NQC2197-01	50.00	50.00	03/19/07 07:31	JMR	EPA 200.7
EPA 200.7	7033322	NQC2197-01	50.00	50.00	03/19/07 07:31	JMR	EPA 200.7
EPA 200.7	7033322	NQC2197-01	50.00	50.00	03/19/07 07:31	JMR	EPA 200.7
EPA 200.7	7033322	NQC2197-01	50.00	50.00	03/19/07 07:31	JMR	EPA 200.7
EPA 200.7	7033322	NQC2197-01	50.00	50.00	03/19/07 07:31	JMR	EPA 200.7
EPA 200.7	7033322	NQC2197-01	50.00	50.00	03/19/07 07:31	JMR	EPA 200.7
EPA 200.7	7033322	NQC2197-01	50.00	50.00	03/19/07 07:31	JMR	EPA 200.7
EPA 200.7	7033322	NQC2197-01	50.00	50.00	03/19/07 07:31	JMR	EPA 200.7
EPA 200.7	7033322	NQC2197-01	50.00	50.00	03/19/07 07:31	JMR	EPA 200.7
EPA 200.7	7033322	NQC2197-01	50.00	50.00	03/19/07 07:31	JMR	EPA 200.7
EPA 200.7	7033322	NQC2197-01	50.00	50.00	03/19/07 07:31	JMR	EPA 200.7
EPA 200.7	7033322	NQC2197-01	50.00	50.00	03/19/07 07:31	JMR	EPA 200.7
EPA 200.7	7033322	NQC2197-01	50.00	50.00	03/19/07 07:31	JMR	EPA 200.7
EPA 200.7	7033322	NQC2197-01	50.00	50.00	03/19/07 07:31	JMR	EPA 200.7
EPA 200.7	7033322	NQC2197-01	50.00	50.00	03/19/07 07:31	JMR	EPA 200.7
EPA 200.7	7033322	NQC2197-01	50.00	50.00	03/19/07 07:31	JMR	EPA 200.7
EPA 200.7	7033322	NQC2197-01	50.00	50.00	03/19/07 07:31	JMR	EPA 200.7
EPA 200.7	7033322	NQC2197-01	50.00	50.00	03/19/07 07:31	JMR	EPA 200.7
EPA 200.7	7033322	NQC2197-01	50.00	50.00	03/19/07 07:31	JMR	EPA 200.7
<b>Total Metals by EPA Method 6010B</b>							
SW846 6010B	7033499	NQC2197-02	0.51	100.00	03/20/07 07:46	AMB	EPA 3051
SW846 6010B	7033499	NQC2197-02	0.51	100.00	03/20/07 07:46	AMB	EPA 3051
SW846 6010B	7033499	NQC2197-02	0.51	100.00	03/20/07 07:46	AMB	EPA 3051
SW846 6010B	7033499	NQC2197-03	0.52	100.00	03/20/07 07:46	AMB	EPA 3051
SW846 6010B	7033499	NQC2197-03	0.52	100.00	03/20/07 07:46	AMB	EPA 3051
SW846 6010B	7033499	NQC2197-03	0.52	100.00	03/20/07 07:46	AMB	EPA 3051
SW846 6010B	7033499	NQC2197-04	0.52	100.00	03/20/07 07:46	AMB	EPA 3051
SW846 6010B	7033499	NQC2197-04	0.52	100.00	03/20/07 07:46	AMB	EPA 3051
SW846 6010B	7033499	NQC2197-04	0.52	100.00	03/20/07 07:46	AMB	EPA 3051
SW846 6010B	7033499	NQC2197-05	0.52	100.00	03/20/07 07:46	AMB	EPA 3051

Client	Barr Engineering (14336)	Work Order:	NQC2197
	3236 Emerald Lane	Project Name:	Bonne Terre Mine Tailings Site 25/86-014
	Jefferson City, MO 65109	Project Number:	Bonne Terre Mine Tailings Site 25/86-014
Attn	Ty Morris	Received:	03/16/07 08:00

### SAMPLE EXTRACTION DATA

Parameter	Batch	Lab Number	Wt/Vol Extracted	Extracted Vol	Date	Analyst	Extraction Method
SW846 6010B	7033499	NQC2197-05	0.52	100.00	03/20/07 07:46	AMB	EPA 3051
SW846 6010B	7033499	NQC2197-05	0.52	100.00	03/20/07 07:46	AMB	EPA 3051
SW846 6010B	7033499	NQC2197-06	0.52	100.00	03/20/07 07:46	AMB	EPA 3051
SW846 6010B	7033499	NQC2197-06	0.52	100.00	03/20/07 07:46	AMB	EPA 3051
SW846 6010B	7033499	NQC2197-06	0.52	100.00	03/20/07 07:46	AMB	EPA 3051

Client	Barr Engineering (14336) 3236 Emerald Lane Jefferson City, MO 65109	Work Order:	NQC2197
Attn	Ty Morris	Project Name:	Bonne Terre Mine Tailings Site 25/86-014
		Project Number:	Bonne Terre Mine Tailings Site 25/86-014
		Received:	03/16/07 08:00

**PROJECT QUALITY CONTROL DATA**  
**Blank**

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
<b>General Chemistry Parameters</b>						
<b>7032943-BLK1</b>						
Settleable Solids	<0.100		mL/L/hr	7032943	7032943-BLK1	03/16/07 11:15
<b>7032986-BLK1</b>						
Total Dissolved Solids	<5.00		mg/L	7032986	7032986-BLK1	03/20/07 15:36
<b>7032987-BLK1</b>						
Total Suspended Solids	<0.500		mg/L	7032987	7032987-BLK1	03/19/07 15:17
<b>7033069-BLK1</b>						
BOD - 5 Day	<1.00		mg/L	7033069	7033069-BLK1	03/21/07 23:45
<b>7033071-BLK1</b>						
Alkalinity, Total (CaCO <sub>3</sub> )	<5.00		mg/L	7033071	7033071-BLK1	03/20/07 18:09
<b>7033089-BLK1</b>						
Nitrate/Nitrite as N	<0.0250		mg/L	7033089	7033089-BLK1	03/16/07 23:18
<b>7033286-BLK1</b>						
Total Organic Carbon	<0.500		mg/L	7033286	7033286-BLK1	03/18/07 11:09
<b>7033424-BLK1</b>						
Specific conductance	<10.0		umho/cm	7033424	7033424-BLK1	03/19/07 16:01
<b>7034197-BLK1</b>						
Chemical Oxygen Demand	<5.50		mg/L	7034197	7034197-BLK1	03/22/07 19:46
<b>7034662-BLK1</b>						
Ammonia as N	<0.0460		mg/L	7034662	7034662-BLK1	03/26/07 19:07
<b>7034666-BLK1</b>						
Chloride	<0.500		mg/L	7034666	7034666-BLK1	03/27/07 02:09
Fluoride	<0.0500		mg/L	7034666	7034666-BLK1	03/27/07 02:09
Sulfate	<0.500		mg/L	7034666	7034666-BLK1	03/27/07 02:09
<b>7034769-BLK1</b>						
Total Kjeldahl Nitrogen	<0.0500		mg/L	7034769	7034769-BLK1	03/27/07 19:06
<b>7034773-BLK1</b>						
Phosphorus	<0.0180		mg/L	7034773	7034773-BLK1	03/27/07 10:31
<b>7034774-BLK1</b>						
Phenolics	<0.0200		mg/L	7034774	7034774-BLK1	03/27/07 10:59
<b>7034775-BLK1</b>						

Client	Barr Engineering (14336) 3236 Emerald Lane Jefferson City, MO 65109	Work Order:	NQC2197
		Project Name:	Bonne Terre Mine Tailings Site 25/86-014
Attn	Ty Morris	Project Number:	Bonne Terre Mine Tailings Site 25/86-014
		Received:	03/16/07 08:00

**PROJECT QUALITY CONTROL DATA**  
**Blank - Cont.**

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
<b>General Chemistry Parameters</b>						
<b>7034775-BLK1</b>						
Cyanide	<0.0020		mg/L	7034775	7034775-BLK1	03/27/07 11:53
<b>7034867-BLK1</b>						
Oil & Grease HEM	<0.833		mg/L	7034867	7034867-BLK1	03/27/07 16:46
<b>Total Metals by EPA Method 6010B</b>						
<b>7033499-BLK1</b>						
Cadmium	<0.293		mg/kg	7033499	7033499-BLK1	03/22/07 10:41
Lead	<0.879		mg/kg	7033499	7033499-BLK1	03/21/07 22:35
Zinc	<0.977		mg/kg	7033499	7033499-BLK1	03/21/07 22:35
<b>Total Metals by EPA Method 200.7</b>						
<b>7033322-BLK1</b>						
Aluminum	<0.0400		mg/L	7033322	7033322-BLK1	03/20/07 08:51
Antimony	<0.00800		mg/L	7033322	7033322-BLK1	03/20/07 08:51
Arsenic	<0.00450		mg/L	7033322	7033322-BLK1	03/20/07 08:51
Barium	<0.00200		mg/L	7033322	7033322-BLK1	03/20/07 08:51
Beryllium	<0.00100		mg/L	7033322	7033322-BLK1	03/20/07 08:51
Boron	<0.0100		mg/L	7033322	7033322-BLK1	03/20/07 08:51
Cadmium	<0.000800		mg/L	7033322	7033322-BLK1	03/20/07 08:51
Calcium	<0.100		mg/L	7033322	7033322-BLK1	03/20/07 08:51
Chromium	<0.00250		mg/L	7033322	7033322-BLK1	03/20/07 08:51
Cobalt	<0.0100		mg/L	7033322	7033322-BLK1	03/20/07 08:51
Copper	<0.00300		mg/L	7033322	7033322-BLK1	03/20/07 08:51
Iron	<0.0430		mg/L	7033322	7033322-BLK1	03/20/07 08:51
Lead	<0.00300		mg/L	7033322	7033322-BLK1	03/20/07 08:51
Magnesium	<0.100		mg/L	7033322	7033322-BLK1	03/20/07 08:51
Manganese	<0.00500		mg/L	7033322	7033322-BLK1	03/20/07 08:51
Molybdenum	<0.0100		mg/L	7033322	7033322-BLK1	03/20/07 08:51
Nickel	<0.00300		mg/L	7033322	7033322-BLK1	03/20/07 08:51
Selenium	<0.00500		mg/L	7033322	7033322-BLK1	03/20/07 08:51
Silver	<0.00300		mg/L	7033322	7033322-BLK1	03/20/07 08:51
Sodium	<0.600		mg/L	7033322	7033322-BLK1	03/20/07 08:51
Thallium	<0.00960		mg/L	7033322	7033322-BLK1	03/20/07 08:51
Zinc	<0.0200		mg/L	7033322	7033322-BLK1	03/20/07 08:51

**Mercury by EPA 245.1**

**7033571-BLK1**

Mercury	<0.000100	mg/L	7033571	7033571-BLK1	03/22/07 15:00
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**Organochlorine Pesticides and/or PCBs by EPA Method 608**

**7033200-BLK1**

Client	Barr Engineering (14336) 3236 Emerald Lane Jefferson City, MO 65109	Work Order:	NQC2197
		Project Name:	Bonne Terre Mine Tailings Site 25/86-014
Attn	Ty Morris	Project Number:	Bonne Terre Mine Tailings Site 25/86-014
		Received:	03/16/07 08:00

**PROJECT QUALITY CONTROL DATA**  
**Blank - Cont.**

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
<b>Organochlorine Pesticides and/or PCBs by EPA Method 608</b>						
<b>7033200-BLK1</b>						
PCB-1016	<0.190		ug/L	7033200	7033200-BLK1	03/19/07 14:29
PCB-1221	<0.270		ug/L	7033200	7033200-BLK1	03/19/07 14:29
PCB-1232	<0.110		ug/L	7033200	7033200-BLK1	03/19/07 14:29
PCB-1242	<0.180		ug/L	7033200	7033200-BLK1	03/19/07 14:29
PCB-1248	<0.0900		ug/L	7033200	7033200-BLK1	03/19/07 14:29
PCB-1254	<0.100		ug/L	7033200	7033200-BLK1	03/19/07 14:29
PCB-1260	<0.0900		ug/L	7033200	7033200-BLK1	03/19/07 14:29
<i>Surrogate: Tetrachloro-meta-xylene</i>	88%			7033200	7033200-BLK1	03/19/07 14:29
<i>Surrogate: Decachlorobiphenyl</i>	47%			7033200	7033200-BLK1	03/19/07 14:29
<b>7033201-BLK1</b>						
Aldrin	<0.0300		ug/L	7033201	7033201-BLK1	03/20/07 02:14
delta-BHC	<0.0300		ug/L	7033201	7033201-BLK1	03/20/07 02:14
alpha-BHC	<0.0300		ug/L	7033201	7033201-BLK1	03/20/07 02:14
beta-BHC	<0.0300		ug/L	7033201	7033201-BLK1	03/20/07 02:14
gamma-BHC (Lindane)	<0.0300		ug/L	7033201	7033201-BLK1	03/20/07 02:14
alpha-Chlordane	<0.0400		ug/L	7033201	7033201-BLK1	03/20/07 02:14
gamma-Chlordane	<0.0300		ug/L	7033201	7033201-BLK1	03/20/07 02:14
Chlordane	<0.300		ug/L	7033201	7033201-BLK1	03/20/07 02:14
4,4'-DDD	<0.0300		ug/L	7033201	7033201-BLK1	03/20/07 02:14
4,4'-DDE	<0.0200		ug/L	7033201	7033201-BLK1	03/20/07 02:14
4,4'-DDT	<0.0300		ug/L	7033201	7033201-BLK1	03/20/07 02:14
Dieldrin	<0.0300		ug/L	7033201	7033201-BLK1	03/20/07 02:14
Endosulfan I	<0.0300		ug/L	7033201	7033201-BLK1	03/20/07 02:14
Endosulfan II	<0.0300		ug/L	7033201	7033201-BLK1	03/20/07 02:14
Endosulfan sulfate	<0.0400		ug/L	7033201	7033201-BLK1	03/20/07 02:14
Endrin	<0.0400		ug/L	7033201	7033201-BLK1	03/20/07 02:14
Endrin aldehyde	<0.0400		ug/L	7033201	7033201-BLK1	03/20/07 02:14
Endrin ketone	<0.0400		ug/L	7033201	7033201-BLK1	03/20/07 02:14
Heptachlor	<0.0300		ug/L	7033201	7033201-BLK1	03/20/07 02:14
Heptachlor epoxide	<0.0300		ug/L	7033201	7033201-BLK1	03/20/07 02:14
Methoxychlor	<0.0300		ug/L	7033201	7033201-BLK1	03/20/07 02:14
Toxaphene	<1.70		ug/L	7033201	7033201-BLK1	03/20/07 02:14
<i>Surrogate: Tetrachloro-meta-xylene</i>	78%			7033201	7033201-BLK1	03/20/07 02:14
<i>Surrogate: Decachlorobiphenyl</i>	83%			7033201	7033201-BLK1	03/20/07 02:14

**Purgeable Organic Compounds by EPA Method 624**

<b>7033471-BLK1</b>					
Acetone	<2.54		ug/L	7033471	7033471-BLK1
Acrolein	<4.58		ug/L	7033471	7033471-BLK1
Acrylonitrile	<3.31		ug/L	7033471	7033471-BLK1
Benzene	<0.120		ug/L	7033471	7033471-BLK1

Client	Barr Engineering (14336)	Work Order:	NQC2197
	3236 Emerald Lane	Project Name:	Bonne Terre Mine Tailings Site 25/86-014
	Jefferson City, MO 65109	Project Number:	Bonne Terre Mine Tailings Site 25/86-014
Attn	Ty Morris	Received:	03/16/07 08:00

**PROJECT QUALITY CONTROL DATA**  
**Blank - Cont.**

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
<b>Purgeable Organic Compounds by EPA Method 624</b>						
<b>7033471-BLK1</b>						
Bromobenzene	<0.150		ug/L	7033471	7033471-BLK1	03/21/07 11:26
Bromochloromethane	<0.240		ug/L	7033471	7033471-BLK1	03/21/07 11:26
Bromodichloromethane	<0.190		ug/L	7033471	7033471-BLK1	03/21/07 11:26
Bromoform	<0.110		ug/L	7033471	7033471-BLK1	03/21/07 11:26
Bromomethane	<0.280		ug/L	7033471	7033471-BLK1	03/21/07 11:26
n-Butylbenzene	<0.200		ug/L	7033471	7033471-BLK1	03/21/07 11:26
sec-Butylbenzene	<0.160		ug/L	7033471	7033471-BLK1	03/21/07 11:26
tert-Butylbenzene	<0.140		ug/L	7033471	7033471-BLK1	03/21/07 11:26
Carbon disulfide	<0.130		ug/L	7033471	7033471-BLK1	03/21/07 11:26
Carbon Tetrachloride	<0.260		ug/L	7033471	7033471-BLK1	03/21/07 11:26
Chlorobenzene	<0.130		ug/L	7033471	7033471-BLK1	03/21/07 11:26
Chlorodibromomethane	<0.320		ug/L	7033471	7033471-BLK1	03/21/07 11:26
Chloroethane	<0.140		ug/L	7033471	7033471-BLK1	03/21/07 11:26
2-Chloroethylvinyl ether	<0.130		ug/L	7033471	7033471-BLK1	03/21/07 11:26
Chloroform	<0.110		ug/L	7033471	7033471-BLK1	03/21/07 11:26
Chloromethane	<0.260		ug/L	7033471	7033471-BLK1	03/21/07 11:26
2-Chlorotoluene	<0.200		ug/L	7033471	7033471-BLK1	03/21/07 11:26
4-Chlorotoluene	<0.160		ug/L	7033471	7033471-BLK1	03/21/07 11:26
1,2-Dibromo-3-chloropropane	<0.890		ug/L	7033471	7033471-BLK1	03/21/07 11:26
1,2-Dibromoethane (EDB)	<0.140		ug/L	7033471	7033471-BLK1	03/21/07 11:26
Dibromomethane	<0.150		ug/L	7033471	7033471-BLK1	03/21/07 11:26
1,2-Dichlorobenzene	<0.160		ug/L	7033471	7033471-BLK1	03/21/07 11:26
1,4-Dichlorobenzene	<0.200		ug/L	7033471	7033471-BLK1	03/21/07 11:26
1,3-Dichlorobenzene	<0.130		ug/L	7033471	7033471-BLK1	03/21/07 11:26
Dichlorodifluoromethane	<0.420		ug/L	7033471	7033471-BLK1	03/21/07 11:26
1,2-Dichloroethane	<0.140		ug/L	7033471	7033471-BLK1	03/21/07 11:26
1,1-Dichloroethane	<0.170		ug/L	7033471	7033471-BLK1	03/21/07 11:26
cis-1,2-Dichloroethene	<0.150		ug/L	7033471	7033471-BLK1	03/21/07 11:26
trans-1,2-Dichloroethene	<0.170		ug/L	7033471	7033471-BLK1	03/21/07 11:26
1,2-Dichloroethene (total)	<0.320		ug/L	7033471	7033471-BLK1	03/21/07 11:26
1,1-Dichloroethene	<0.210		ug/L	7033471	7033471-BLK1	03/21/07 11:26
1,2-Dichloropropane	<0.220		ug/L	7033471	7033471-BLK1	03/21/07 11:26
1,3-Dichloropropane	<0.140		ug/L	7033471	7033471-BLK1	03/21/07 11:26
2,2-Dichloropropane	<0.310		ug/L	7033471	7033471-BLK1	03/21/07 11:26
cis-1,3-Dichloropropene	<0.120		ug/L	7033471	7033471-BLK1	03/21/07 11:26
trans-1,3-Dichloropropene	<0.110		ug/L	7033471	7033471-BLK1	03/21/07 11:26
1,1-Dichloropropene	<0.240		ug/L	7033471	7033471-BLK1	03/21/07 11:26
Ethylbenzene	<0.110		ug/L	7033471	7033471-BLK1	03/21/07 11:26
Hexachlorobutadiene	<0.370		ug/L	7033471	7033471-BLK1	03/21/07 11:26
Isopropylbenzene	<0.100		ug/L	7033471	7033471-BLK1	03/21/07 11:26
p-Isopropyltoluene	<0.160		ug/L	7033471	7033471-BLK1	03/21/07 11:26
Methyl tert-Butyl Ether	<0.150		ug/L	7033471	7033471-BLK1	03/21/07 11:26

Client	Barr Engineering (14336) 3236 Emerald Lane Jefferson City, MO 65109	Work Order:	NQC2197
		Project Name:	Bonne Terre Mine Tailings Site 25/86-014
		Project Number:	Bonne Terre Mine Tailings Site 25/86-014
Attn	Ty Morris	Received:	03/16/07 08:00

### PROJECT QUALITY CONTROL DATA Blank - Cont.

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
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**Purgeable Organic Compounds by EPA Method 624**
**7033471-BLK1**

Methylene Chloride	1.06	ug/L	7033471	7033471-BLK1	03/21/07 11:26
4-Methyl-2-pentanone	<2.69	ug/L	7033471	7033471-BLK1	03/21/07 11:26
Naphthalene	0.970	ug/L	7033471	7033471-BLK1	03/21/07 11:26
n-Propylbenzene	<0.140	ug/L	7033471	7033471-BLK1	03/21/07 11:26
Styrene	<0.130	ug/L	7033471	7033471-BLK1	03/21/07 11:26
1,1,1,2-Tetrachloroethane	<0.240	ug/L	7033471	7033471-BLK1	03/21/07 11:26
1,1,2,2-Tetrachloroethane	<0.150	ug/L	7033471	7033471-BLK1	03/21/07 11:26
Tetrachloroethene	<0.220	ug/L	7033471	7033471-BLK1	03/21/07 11:26
Toluene	<0.130	ug/L	7033471	7033471-BLK1	03/21/07 11:26
1,2,3-Trichlorobenzene	0.970	ug/L	7033471	7033471-BLK1	03/21/07 11:26
1,2,4-Trichlorobenzene	<0.270	ug/L	7033471	7033471-BLK1	03/21/07 11:26
1,1,2-Trichloroethane	<0.120	ug/L	7033471	7033471-BLK1	03/21/07 11:26
1,1,1-Trichloroethane	<0.220	ug/L	7033471	7033471-BLK1	03/21/07 11:26
Trichloroethene	<0.380	ug/L	7033471	7033471-BLK1	03/21/07 11:26
Trichlorofluoromethane	<0.180	ug/L	7033471	7033471-BLK1	03/21/07 11:26
1,2,3-Trichloropropane	<0.160	ug/L	7033471	7033471-BLK1	03/21/07 11:26
1,1,1-Trichlorotrifluoroethane	<0.250	ug/L	7033471	7033471-BLK1	03/21/07 11:26
1,3,5-Trimethylbenzene	<0.120	ug/L	7033471	7033471-BLK1	03/21/07 11:26
1,2,4-Trimethylbenzene	<0.160	ug/L	7033471	7033471-BLK1	03/21/07 11:26
Vinyl acetate	<6.44	ug/L	7033471	7033471-BLK1	03/21/07 11:26
Vinyl chloride	<0.190	ug/L	7033471	7033471-BLK1	03/21/07 11:26
o-Xylene	<0.110	ug/L	7033471	7033471-BLK1	03/21/07 11:26
m,p-Xylene	<0.280	ug/L	7033471	7033471-BLK1	03/21/07 11:26
Xylenes, total	<0.280	ug/L	7033471	7033471-BLK1	03/21/07 11:26
Bis(chloromethyl)ether	<0.250	ug/L	7033471	7033471-BLK1	03/21/07 11:26
Surrogate: 1,2-Dichloroethane-d4	107%		7033471	7033471-BLK1	03/21/07 11:26
Surrogate: Dibromoiodomethane	101%		7033471	7033471-BLK1	03/21/07 11:26
Surrogate: Toluene-d8	93%		7033471	7033471-BLK1	03/21/07 11:26
Surrogate: 4-Bromofluorobenzene	102%		7033471	7033471-BLK1	03/21/07 11:26

**Acid and Base/Neutral Extractables by EPA Method 625**
**7033234-BLK1**

Acenaphthene	<2.60	ug/L	7033234	7033234-BLK1	03/23/07 09:51
Acenaphthylene	<1.40	ug/L	7033234	7033234-BLK1	03/23/07 09:51
Aniline	<5.40	ug/L	7033234	7033234-BLK1	03/23/07 09:51
Anthracene	<1.60	ug/L	7033234	7033234-BLK1	03/23/07 09:51
Benzidine	<34.0	ug/L	7033234	7033234-BLK1	03/26/07 05:21
Benzo (a) anthracene	<1.60	ug/L	7033234	7033234-BLK1	03/23/07 09:51
Benzo (a) pyrene	<1.70	ug/L	7033234	7033234-BLK1	03/23/07 09:51
Benzo (b) fluoranthene	<3.30	ug/L	7033234	7033234-BLK1	03/23/07 09:51
Benzo (g,h,i) perylene	<1.60	ug/L	7033234	7033234-BLK1	03/23/07 09:51

Client	Barr Engineering (14336) 3236 Emerald Lane Jefferson City, MO 65109	Work Order:	NQC2197
		Project Name:	Bonne Terre Mine Tailings Site 25/86-014
		Project Number:	Bonne Terre Mine Tailings Site 25/86-014
Attn	Ty Morris	Received:	03/16/07 08:00

**PROJECT QUALITY CONTROL DATA**  
**Blank - Cont.**

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
<b>Acid and Base/Neutral Extractables by EPA Method 625</b>						
<b>7033234-BLK1</b>						
Benzo (k) fluoranthene	<2.70		ug/L	7033234	7033234-BLK1	03/23/07 09:51
4-Bromophenyl phenyl ether	<1.70		ug/L	7033234	7033234-BLK1	03/23/07 09:51
Butyl benzyl phthalate	<1.50		ug/L	7033234	7033234-BLK1	03/23/07 09:51
4-Chloroaniline	<4.70		ug/L	7033234	7033234-BLK1	03/23/07 09:51
Carbazole	<1.60		ug/L	7033234	7033234-BLK1	03/23/07 09:51
4-Chloro-3-methylphenol	<1.60		ug/L	7033234	7033234-BLK1	03/23/07 09:51
Bis(2-chloroethoxy)methane	<1.70		ug/L	7033234	7033234-BLK1	03/23/07 09:51
Benzoic acid	<15.0		ug/L	7033234	7033234-BLK1	03/23/07 09:51
Benzyl alcohol	<1.90		ug/L	7033234	7033234-BLK1	03/23/07 09:51
Bis(2-chloroethyl)ether	<1.80		ug/L	7033234	7033234-BLK1	03/23/07 09:51
Bis(2-chloroisopropyl)ether	<1.90		ug/L	7033234	7033234-BLK1	03/23/07 09:51
2-Chloronaphthalene	<1.40		ug/L	7033234	7033234-BLK1	03/23/07 09:51
2-Chloropheno!	<1.50		ug/L	7033234	7033234-BLK1	03/23/07 09:51
4-Chlorophenyl phenyl ether	<1.50		ug/L	7033234	7033234-BLK1	03/23/07 09:51
Chrysene	<1.70		ug/L	7033234	7033234-BLK1	03/23/07 09:51
Decane	<3.10		ug/L	7033234	7033234-BLK1	03/23/07 09:51
Dibenz (a,h) anthracene	<1.70		ug/L	7033234	7033234-BLK1	03/23/07 09:51
Di-n-butyl phthalate	<1.60		ug/L	7033234	7033234-BLK1	03/23/07 09:51
2,3-Dichloroaniline	<10.0		ug/L	7033234	7033234-BLK1	03/23/07 09:51
1,3-Dichlorobenzene	<1.60		ug/L	7033234	7033234-BLK1	03/23/07 09:51
1,4-Dichlorobenzene	<2.00		ug/L	7033234	7033234-BLK1	03/23/07 09:51
1,2-Dichlorobenzene	<2.30		ug/L	7033234	7033234-BLK1	03/23/07 09:51
3,3-Dichlorobenzidine	<3.90		ug/L	7033234	7033234-BLK1	03/23/07 09:51
2,4-Dichlorophenol	<1.40		ug/L	7033234	7033234-BLK1	03/23/07 09:51
3,4-Dichlorophenol	<1.40		ug/L	7033234	7033234-BLK1	03/23/07 09:51
Diethyl phthalate	<1.50		ug/L	7033234	7033234-BLK1	03/23/07 09:51
2,4-Dimethylphenol	<3.80		ug/L	7033234	7033234-BLK1	03/23/07 09:51
Dimethyl phthalate	<1.90		ug/L	7033234	7033234-BLK1	03/23/07 09:51
4,6-Dinitro-2-methylphenol	<3.20		ug/L	7033234	7033234-BLK1	03/23/07 09:51
2,4-Dinitrophenol	<5.50		ug/L	7033234	7033234-BLK1	03/23/07 09:51
2,4-Dinitrotoluene	<1.90		ug/L	7033234	7033234-BLK1	03/23/07 09:51
2,6-Dinitrotoluene	<1.80		ug/L	7033234	7033234-BLK1	03/23/07 09:51
Di-n-octyl phthalate	<1.40		ug/L	7033234	7033234-BLK1	03/23/07 09:51
1,2-Diphenylhydrazine	<1.40		ug/L	7033234	7033234-BLK1	03/23/07 09:51
Bis(2-ethylhexyl)phthalate	<1.40		ug/L	7033234	7033234-BLK1	03/23/07 09:51
Fluoranthene	<2.40		ug/L	7033234	7033234-BLK1	03/23/07 09:51
Fluorene	<1.40		ug/L	7033234	7033234-BLK1	03/23/07 09:51
Hexachlorobenzene	<1.80		ug/L	7033234	7033234-BLK1	03/23/07 09:51
Hexachlorobutadiene	<2.20		ug/L	7033234	7033234-BLK1	03/23/07 09:51
Hexachlorocyclopentadiene	<2.60		ug/L	7033234	7033234-BLK1	03/23/07 09:51
Hexachloroethane	<1.90		ug/L	7033234	7033234-BLK1	03/23/07 09:51
Indeno (1,2,3-cd) pyrene	<1.60		ug/L	7033234	7033234-BLK1	03/23/07 09:51

Client	Barr Engineering (14336)	Work Order:	NQC2197
	3236 Emerald Lane	Project Name:	Bonne Terre Mine Tailings Site 25/86-014
	Jefferson City, MO 65109	Project Number:	Bonne Terre Mine Tailings Site 25/86-014
Attn	Ty Morris	Received:	03/16/07 08:00

**PROJECT QUALITY CONTROL DATA**  
**Blank - Cont.**

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
<b>Acid and Base/Neutral Extractables by EPA Method 625</b>						
<b>7033234-BLK1</b>						
Isophorone	<1.40		ug/L	7033234	7033234-BLK1	03/23/07 09:51
2-Methylphenol	<2.50		ug/L	7033234	7033234-BLK1	03/23/07 09:51
3/4-Methylphenol	<2.70		ug/L	7033234	7033234-BLK1	03/23/07 09:51
Naphthalene	<1.20		ug/L	7033234	7033234-BLK1	03/23/07 09:51
Nitrobenzene	<1.40		ug/L	7033234	7033234-BLK1	03/23/07 09:51
2-Nitrophenol	<1.70		ug/L	7033234	7033234-BLK1	03/23/07 09:51
4-Nitrophenol	<1.90		ug/L	7033234	7033234-BLK1	03/23/07 09:51
N-Nitrosodimethylamine	<2.10		ug/L	7033234	7033234-BLK1	03/23/07 09:51
N-Nitrosodiphenylamine	<2.30		ug/L	7033234	7033234-BLK1	03/23/07 09:51
N-Nitrosodi-n-propylamine	<1.50		ug/L	7033234	7033234-BLK1	03/23/07 09:51
n-Octadecane	<3.70		ug/L	7033234	7033234-BLK1	03/23/07 09:51
Pentachlorophenol	<8.70		ug/L	7033234	7033234-BLK1	03/23/07 09:51
2-Methylnaphthalene	<1.80		ug/L	7033234	7033234-BLK1	03/23/07 09:51
Phenanthrene	<1.50		ug/L	7033234	7033234-BLK1	03/23/07 09:51
1-Methylnaphthalene	<1.40		ug/L	7033234	7033234-BLK1	03/23/07 09:51
Phenol	<1.60		ug/L	7033234	7033234-BLK1	03/23/07 09:51
Pyrene	<1.90		ug/L	7033234	7033234-BLK1	03/23/07 09:51
Pyridine	<4.40		ug/L	7033234	7033234-BLK1	03/23/07 09:51
1,2,4-Trichlorobenzene	<1.60		ug/L	7033234	7033234-BLK1	03/23/07 09:51
2,4,6-Trichlorophenol	<1.50		ug/L	7033234	7033234-BLK1	03/23/07 09:51
Dibenzofuran	<1.60		ug/L	7033234	7033234-BLK1	03/23/07 09:51
2,4,5-Trichlorophenol	<1.60		ug/L	7033234	7033234-BLK1	03/23/07 09:51
Surrogate: Terphenyl-d14	84%			7033234	7033234-BLK1	03/23/07 09:51
Surrogate: 2,4,6-Tribromophenol	67%			7033234	7033234-BLK1	03/23/07 09:51
Surrogate: Phenol-d5	28%			7033234	7033234-BLK1	03/23/07 09:51
Surrogate: 2-Fluorobiphenyl	69%			7033234	7033234-BLK1	03/23/07 09:51
Surrogate: 2-Fluorophenol	40%			7033234	7033234-BLK1	03/23/07 09:51
Surrogate: Nitrobenzene-d5	67%			7033234	7033234-BLK1	03/23/07 09:51

Client	Barr Engineering (14336) 3236 Emerald Lane Jefferson City, MO 65109	Work Order:	NQC2197
		Project Name:	Bonne Terre Mine Tailings Site 25/86-014
		Project Number:	Bonne Terre Mine Tailings Site 25/86-014
Attn	Ty Morris	Received:	03/16/07 08:00

### PROJECT QUALITY CONTROL DATA

**Duplicate**

Analyte	Orig. Val.	Duplicate	Q	Units	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
<b>General Chemistry Parameters</b>									
<b>7032943-DUP1</b>									
Settleable Solids	ND	ND		mL/L/hr		20	7032943	NQC2197-01	03/16/07 11:15
<b>7032986-DUP1</b>									
Total Dissolved Solids	285	190	R2	mg/L	40	20	7032986	NQC2217-03	03/20/07 15:36
<b>7032987-DUP1</b>									
Total Suspended Solids	7.20	7.47		mg/L	4	20	7032987	NQC2225-01	03/19/07 15:17
<b>7033035-DUP1</b>									
pH	7.40	7.40		pH Units	0	200	7033035	NQC2197-01	03/16/07 14:07
<b>7033069-DUP1</b>									
BOD - 5 Day	15.8	13.5		mg/L	16	20	7033069	NQC2182-01	03/21/07 23:45
<b>7033069-DUP2</b>									
BOD - 5 Day	ND	ND		mg/L		20	7033069	NQC2208-01	03/21/07 23:45
<b>7033071-DUP1</b>									
Alkalinity, Total (CaCO <sub>3</sub> )	326	324		mg/L	0.6	20	7033071	NQC2197-01	03/20/07 18:09
<b>7033089-DUP1</b>									
Nitrate/Nitrite as N	0.210	0.207		mg/L	1	20	7033089	NQC2257-02	03/17/07 00:27
<b>7033286-DUP1</b>									
Total Organic Carbon	1.85	1.92		mg/L	4	20	7033286	NQC2287-04	03/18/07 11:09
<b>7033424-DUP1</b>									
Specific conductance	1260	1260		μmho/cm	0	10	7033424	NQC2197-01	03/19/07 16:01
<b>7034197-DUP1</b>									
Chemical Oxygen Demand	14.6	14.6		mg/L	0	10	7034197	NQC2682-04	03/22/07 19:46
<b>7034662-DUP1</b>									
Ammonia as N	5.67	5.62		mg/L	0.9	28	7034662	NQC2779-02	03/26/07 19:07
<b>7034666-DUP1</b>									
Chloride	39.3	39.9		mg/L	2	20	7034666	NQC2197-01	03/27/07 23:54
Fluoride	0.137	0.141		mg/L	3	19	7034666	NQC2197-01	03/31/07 23:54
Sulfate	350	360		mg/L	3	20	7034666	NQC2197-01	03/27/07 03:22
<b>7034769-DUP1</b>									
Total Kjeldahl Nitrogen	ND	ND		mg/L		20	7034769	NQC2779-06	03/27/07 19:06

Client	Barr Engineering (14336) 3236 Emerald Lane Jefferson City, MO 65109	Work Order:	NQC2197
		Project Name:	Bonne Terre Mine Tailings Site 25/86-014
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Attn	Ty Morris	Received:	03/16/07 08:00

### PROJECT QUALITY CONTROL DATA

#### Duplicate - Cont.

Analyte	Orig. Val.	Duplicate	Q	Units	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
<b>General Chemistry Parameters</b>									
<b>7034773-DUP1</b>									
Phosphorus	0.0430	0.0480		mg/L	11	31	7034773	NQC2197-01	03/27/07 10:31
<b>7034774-DUP1</b>									
Phenolics	ND	ND		mg/L		34	7034774	NQC2307-01	03/27/07 10:59
<b>7034775-DUP1</b>									
Cyanide	ND	0.0026		mg/L		29	7034775	NQC2307-02	03/27/07 11:53

Client	Barr Engineering (14336) 3236 Emerald Lane Jefferson City, MO 65109	Work Order:	NQC2197
		Project Name:	Bonne Terre Mine Tailings Site 25/86-014
Attn	Ty Morris	Project Number:	Bonne Terre Mine Tailings Site 25/86-014
		Received:	03/16/07 08:00

## PROJECT QUALITY CONTROL DATA LCS

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
<b>General Chemistry Parameters</b>								
<b>7032986-BS1</b>								
Total Dissolved Solids	100	108		ug/mL	108%	90 - 110	7032986	03/20/07 15:36
<b>7032987-BS1</b>								
Total Suspended Solids	100	90.0		mg/L	90%	90 - 110	7032987	03/19/07 15:17
<b>7033069-BS1</b>								
BOD - 5 Day	198	166	L2	ug/mL	84%	85 - 115	7033069	03/21/07 23:45
<b>7033071-BS1</b>								
Alkalinity, Total (CaCO3)	100	94.2		ug/mL	94%	90 - 110	7033071	03/20/07 18:09
<b>7033089-BS1</b>								
Nitrate/Nitrite as N	6.00	5.98		mg/L	100%	90 - 110	7033089	03/16/07 23:19
<b>7033286-BS1</b>								
Total Organic Carbon	200	217		ug/mL	108%	87 - 110	7033286	03/18/07 11:09
<b>7033424-BS1</b>								
Specific conductance	1410	1380		umho/cm	98%	90 - 110	7033424	03/19/07 16:01
<b>7034197-BS1</b>								
Chemical Oxygen Demand	20.0	20.0		ug/mL	100%	90 - 110	7034197	03/22/07 19:46
<b>7034662-BS1</b>								
Ammonia as N	5.00	4.56		ug/mL	91%	90 - 110	7034662	03/26/07 19:07
<b>7034666-BS1</b>								
Chloride	3.00	3.00	MNR	ug/mL	100%	90 - 110	7034666	03/27/07 02:24
Fluoride	2.00	1.89		ug/mL	94%	90 - 110	7034666	03/27/07 02:24
Sulfate	15.0	14.0	MNR	ug/mL	93%	90 - 110	7034666	03/27/07 02:24
<b>7034769-BS1</b>								
Total Kjeldahl Nitrogen	2.50	2.44		mg/L	98%	90 - 110	7034769	03/27/07 19:06
<b>7034773-BS1</b>								
Phosphorus	2.00	1.90		ug/mL	95%	90 - 110	7034773	03/27/07 10:31
<b>7034774-BS1</b>								
Phenolics	0.750	0.756		ug/mL	101%	84 - 113	7034774	03/27/07 10:59
<b>7034775-BS1</b>								
Cyanide	0.100	0.1040		ug/mL	104%	90 - 110	7034775	03/27/07 11:53
<b>7034867-BS1</b>								

Client	Barr Engineering (14336)	Work Order:	NQC2197
	3236 Emerald Lane	Project Name:	Bonne Terre Mine Tailings Site 25/86-014
	Jefferson City, MO 65109	Project Number:	Bonne Terre Mine Tailings Site 25/86-014
Attn	Ty Morris	Received:	03/16/07 08:00

### PROJECT QUALITY CONTROL DATA LCS - Cont.

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
<b>General Chemistry Parameters</b>								
<b>7034867-BS1</b>								
Oil & Grease HEM	40.0	40.7		mg/L	102%	78 - 114	7034867	03/27/07 16:46
<b>Total Metals by EPA Method 6010B</b>								
<b>7033499-BS1</b>								
Cadmium	20.0	21.1		mg/kg	106%	80 - 120	7033499	03/21/07 22:40
Lead	100	104		mg/kg	104%	80 - 120	7033499	03/21/07 22:40
Zinc	100	106		mg/kg	106%	80 - 120	7033499	03/21/07 22:40
<b>Total Metals by EPA Method 200.7</b>								
<b>7033322-BS1</b>								
Aluminum	2.00	1.98		mg/L	99%	85 - 115	7033322	03/20/07 08:55
Antimony	0.100	0.0948		mg/L	95%	85 - 115	7033322	03/20/07 08:55
Arsenic	0.0500	0.0508		mg/L	102%	85 - 115	7033322	03/20/07 08:55
Barium	2.00	2.08		mg/L	104%	85 - 115	7033322	03/20/07 08:55
Beryllium	0.0500	0.0533		mg/L	107%	85 - 115	7033322	03/20/07 08:55
Boron	1.00	1.06		mg/L	106%	85 - 115	7033322	03/20/07 08:55
Cadmium	0.0500	0.0518		mg/L	104%	85 - 115	7033322	03/20/07 08:55
Calcium	5.00	4.95		mg/L	99%	85 - 115	7033322	03/20/07 08:55
Chromium	0.200	0.209		mg/L	104%	85 - 115	7033322	03/20/07 08:55
Cobalt	0.500	0.517		mg/L	103%	85 - 115	7033322	03/20/07 08:55
Copper	0.250	0.251		mg/L	100%	85 - 115	7033322	03/20/07 08:55
Iron	1.00	1.08		mg/L	108%	85 - 115	7033322	03/20/07 08:55
Lead	0.0500	0.0482		mg/L	96%	85 - 115	7033322	03/20/07 08:55
Magnesium	5.00	4.87		mg/L	97%	85 - 115	7033322	03/20/07 08:55
Manganese	0.500	0.524		mg/L	105%	85 - 115	7033322	03/20/07 08:55
Molybdenum	0.500	0.443		mg/L	89%	85 - 115	7033322	03/20/07 08:55
Nickel	0.500	0.514		mg/L	103%	85 - 115	7033322	03/20/07 08:55
Selenium	0.0500	0.0538		mg/L	108%	85 - 115	7033322	03/20/07 08:55
Silver	0.0500	0.0503		mg/L	101%	85 - 115	7033322	03/20/07 08:55
Sodium	5.00	4.74		mg/L	95%	85 - 115	7033322	03/20/07 08:55
Thallium	0.0500	0.0556		mg/L	111%	85 - 115	7033322	03/20/07 08:55
Zinc	0.500	0.527		mg/L	105%	85 - 115	7033322	03/20/07 08:55
<b>Mercury by EPA 245.1</b>								
<b>7033571-BS1</b>								
Mercury	0.00100	0.000979		mg/L	98%	85 - 115	7033571	03/22/07 15:02
<b>Organochlorine Pesticides and/or PCBs by EPA Method 608</b>								
<b>7033200-BS1</b>								
PCB-1248	10.0	7.50		ug/L	75%	38 - 158	7033200	03/19/07 15:52
Surrogate: Tetrachloro-meta-xylene	1.00	0.844			84%	44 - 131	7033200	03/19/07 15:52

Client	Barr Engineering (14336)	Work Order:	NQC2197
	3236 Emerald Lane	Project Name:	Bonne Terre Mine Tailings Site 25/86-014
	Jefferson City, MO 65109	Project Number:	Bonne Terre Mine Tailings Site 25/86-014
Attn	Ty Morris	Received:	03/16/07 08:00

**PROJECT QUALITY CONTROL DATA**  
**LCS - Cont.**

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
<b>Organochlorine Pesticides and/or PCBs by EPA Method 608</b>								
<b>7033200-BS1</b>								
<i>Surrogate: Decachlorobiphenyl</i>	1.00	0.516			52%	24 - 110	7033200	03/19/07 15:52
<b>7033201-BS1</b>								
Aldrin	1.00	0.820		ug/L	82%	42 - 122	7033201	03/20/07 02:43
delta-BHC	1.00	0.900		ug/L	90%	19 - 140	7033201	03/20/07 02:43
alpha-BHC	1.00	0.850		ug/L	85%	37 - 134	7033201	03/20/07 02:43
beta-BHC	1.00	0.900		ug/L	90%	17 - 147	7033201	03/20/07 02:43
gamma-BHC (Lindane)	1.00	0.850		ug/L	85%	32 - 127	7033201	03/20/07 02:43
alpha-Chlordane	1.00	0.870		ug/L	87%	45 - 119	7033201	03/20/07 02:43
gamma-Chlordane	1.00	0.830		ug/L	83%	45 - 119	7033201	03/20/07 02:43
4,4'-DDD	1.00	0.950		ug/L	95%	31 - 141	7033201	03/20/07 02:43
4,4'-DDE	1.00	0.920		ug/L	92%	30 - 145	7033201	03/20/07 02:43
4,4'-DDT	1.00	0.910		ug/L	91%	25 - 160	7033201	03/20/07 02:43
Dieldrin	1.00	0.910		ug/L	91%	36 - 146	7033201	03/20/07 02:43
Endosulfan I	1.00	0.840		ug/L	84%	45 - 153	7033201	03/20/07 02:43
Endosulfan II	1.00	0.870		ug/L	87%	10 - 202	7033201	03/20/07 02:43
Endosulfan sulfate	1.00	0.920		ug/L	92%	26 - 144	7033201	03/20/07 02:43
Endrin	1.00	1.01		ug/L	101%	30 - 147	7033201	03/20/07 02:43
Endrin aldehyde	1.00	0.850		ug/L	85%	48 - 142	7033201	03/20/07 02:43
Endrin ketone	1.00	0.810		ug/L	81%	43 - 163	7033201	03/20/07 02:43
Heptachlor	1.00	0.870		ug/L	87%	34 - 111	7033201	03/20/07 02:43
Heptachlor epoxide	1.00	0.860		ug/L	86%	37 - 142	7033201	03/20/07 02:43
Methoxychlor	1.00	0.960		ug/L	96%	53 - 156	7033201	03/20/07 02:43
<i>Surrogate: Tetrachloro-meta-xylene</i>	2.00	1.67			84%	34 - 165	7033201	03/20/07 02:43
<i>Surrogate: Decachlorobiphenyl</i>	2.00	1.68			84%	13 - 153	7033201	03/20/07 02:43
<b>7033201-BS2</b>								
Chlordane	10.0	8.40		ug/L	84%	45 - 119	7033201	03/20/07 03:11
Toxaphene	20.0	13.7		ug/L	68%	41 - 126	7033201	03/20/07 03:11
<i>Surrogate: Tetrachloro-meta-xylene</i>	1.00	0.700			70%	34 - 165	7033201	03/20/07 03:11
<i>Surrogate: Decachlorobiphenyl</i>	1.00	0.690			69%	13 - 153	7033201	03/20/07 03:11
<b>Purgeable Organic Compounds by EPA Method 624</b>								
<b>7033471-BS1</b>								
Acetone	100	112		ug/L	112%	57 - 148	7033471	03/21/07 10:05
Acrolein	100	169	L	ug/L	169%	47 - 149	7033471	03/21/07 10:05
Acrylonitrile	100	102		ug/L	102%	77 - 124	7033471	03/21/07 10:05
Benzene	20.0	21.8		ug/L	109%	37 - 151	7033471	03/21/07 10:05
Bromobenzene	20.0	19.6		ug/L	98%	70 - 127	7033471	03/21/07 10:05
Bromoform	20.0	22.5		ug/L	112%	82 - 144	7033471	03/21/07 10:05
Bromochloromethane	20.0	23.2		ug/L	116%	35 - 155	7033471	03/21/07 10:05
Bromodichloromethane	20.0	17.5		ug/L	88%	45 - 169	7033471	03/21/07 10:05

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Attn	Ty Morris	Received:	03/16/07 08:00

**PROJECT QUALITY CONTROL DATA**  
**LCS - Cont.**

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
<b>Purgeable Organic Compounds by EPA Method 624</b>								
<b>7033471-BS1</b>								
Bromomethane	20.0	14.8		ug/L	74%	10 - 242	7033471	03/21/07 10:05
n-Butylbenzene	20.0	18.8		ug/L	94%	63 - 146	7033471	03/21/07 10:05
sec-Butylbenzene	20.0	19.9		ug/L	100%	66 - 143	7033471	03/21/07 10:05
tert-Butylbenzene	20.0	19.3		ug/L	96%	67 - 142	7033471	03/21/07 10:05
Carbon disulfide	20.0	21.0		ug/L	105%	76 - 121	7033471	03/21/07 10:05
Carbon Tetrachloride	20.0	22.6		ug/L	113%	70 - 140	7033471	03/21/07 10:05
Chlorobenzene	20.0	20.2		ug/L	101%	37 - 160	7033471	03/21/07 10:05
Chlorodibromomethane	20.0	20.6		ug/L	103%	53 - 149	7033471	03/21/07 10:05
Chloroethane	20.0	16.6		ug/L	83%	14 - 230	7033471	03/21/07 10:05
2-Chloroethylvinyl ether	100	95.7		ug/L	96%	10 - 305	7033471	03/21/07 10:05
Chloroform	20.0	23.7		ug/L	118%	51 - 138	7033471	03/21/07 10:05
Chloromethane	20.0	14.6		ug/L	73%	10 - 273	7033471	03/21/07 10:05
2-Chlorotoluene	20.0	19.9		ug/L	100%	85 - 130	7033471	03/21/07 10:05
4-Chlorotoluene	20.0	19.8		ug/L	99%	86 - 127	7033471	03/21/07 10:05
1,2-Dibromo-3-chloropropane	20.0	15.7		ug/L	78%	71 - 142	7033471	03/21/07 10:05
1,2-Dibromoethane (EDB)	20.0	22.0		ug/L	110%	90 - 132	7033471	03/21/07 10:05
Dibromomethane	20.0	23.5		ug/L	118%	84 - 127	7033471	03/21/07 10:05
1,2-Dichlorobenzene	20.0	20.0		ug/L	100%	18 - 190	7033471	03/21/07 10:05
1,4-Dichlorobenzene	20.0	20.4		ug/L	102%	18 - 190	7033471	03/21/07 10:05
1,3-Dichlorobenzene	20.0	20.6		ug/L	103%	59 - 156	7033471	03/21/07 10:05
Dichlorodifluoromethane	20.0	16.5		ug/L	82%	10 - 157	7033471	03/21/07 10:05
1,2-Dichloroethane	20.0	24.4		ug/L	122%	49 - 155	7033471	03/21/07 10:05
1,1-Dichloroethane	20.0	21.8		ug/L	109%	59 - 155	7033471	03/21/07 10:05
cis-1,2-Dichloroethene	20.0	21.8		ug/L	109%	79 - 132	7033471	03/21/07 10:05
trans-1,2-Dichloroethene	20.0	21.4		ug/L	107%	54 - 156	7033471	03/21/07 10:05
1,2-Dichloroethene (total)	40.0	43.2		ug/L	108%	54 - 156	7033471	03/21/07 10:05
1,1-Dichloroethene	20.0	22.1		ug/L	110%	10 - 234	7033471	03/21/07 10:05
1,2-Dichloropropane	20.0	19.6		ug/L	98%	10 - 210	7033471	03/21/07 10:05
1,3-Dichloropropane	20.0	20.5		ug/L	102%	88 - 130	7033471	03/21/07 10:05
2,2-Dichloropropane	20.0	23.2		ug/L	116%	38 - 155	7033471	03/21/07 10:05
cis-1,3-Dichloropropene	20.0	21.4		ug/L	107%	10 - 227	7033471	03/21/07 10:05
trans-1,3-Dichloropropene	20.0	22.8		ug/L	114%	17 - 183	7033471	03/21/07 10:05
1,1-Dichloropropene	20.0	22.6		ug/L	113%	88 - 133	7033471	03/21/07 10:05
Ethylbenzene	20.0	20.3		ug/L	102%	37 - 162	7033471	03/21/07 10:05
Hexachlorobutadiene	20.0	15.4		ug/L	77%	65 - 138	7033471	03/21/07 10:05
Isopropylbenzene	20.0	19.0		ug/L	95%	72 - 131	7033471	03/21/07 10:05
p-Isopropyltoluene	20.0	19.1		ug/L	96%	65 - 139	7033471	03/21/07 10:05
Methyl tert-Butyl Ether	20.0	18.9		ug/L	94%	80 - 122	7033471	03/21/07 10:05
Methylene Chloride	20.0	19.0		ug/L	95%	10 - 221	7033471	03/21/07 10:05
4-Methyl-2-pentanone	100	104		ug/L	104%	72 - 130	7033471	03/21/07 10:05
Naphthalene	20.0	15.5		ug/L	78%	71 - 152	7033471	03/21/07 10:05

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Attn	Ty Morris	Received:	03/16/07 08:00

### PROJECT QUALITY CONTROL DATA LCS - Cont.

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
<b>Purgeable Organic Compounds by EPA Method 624</b>								
<b>7033471-BS1</b>								
n-Propylbenzene	20.0	19.6		ug/L	98%	82 - 136	7033471	03/21/07 10:05
Styrene	20.0	25.1		ug/L	126%	89 - 142	7033471	03/21/07 10:05
1,1,1,2-Tetrachloroethane	20.0	20.4		ug/L	102%	81 - 136	7033471	03/21/07 10:05
1,1,2,2-Tetrachloroethane	20.0	20.4		ug/L	102%	46 - 157	7033471	03/21/07 10:05
Tetrachloroethene	20.0	20.3		ug/L	102%	64 - 148	7033471	03/21/07 10:05
Toluene	20.0	20.4		ug/L	102%	47 - 150	7033471	03/21/07 10:05
1,2,3-Trichlorobenzene	20.0	16.1		ug/L	80%	66 - 143	7033471	03/21/07 10:05
1,2,4-Trichlorobenzene	20.0	16.1		ug/L	80%	63 - 150	7033471	03/21/07 10:05
1,1,2-Trichloroethane	20.0	22.0		ug/L	110%	52 - 150	7033471	03/21/07 10:05
1,1,1-Trichloroethane	20.0	23.8		ug/L	119%	52 - 162	7033471	03/21/07 10:05
Trichloroethene	20.0	22.5		ug/L	112%	71 - 157	7033471	03/21/07 10:05
Trichlorofluoromethane	20.0	19.4		ug/L	97%	17 - 181	7033471	03/21/07 10:05
1,2,3-Trichloropropane	20.0	18.6		ug/L	93%	44 - 151	7033471	03/21/07 10:05
1,3,5-Trimethylbenzene	20.0	20.1		ug/L	100%	76 - 135	7033471	03/21/07 10:05
1,2,4-Trimethylbenzene	20.0	20.1		ug/L	100%	78 - 133	7033471	03/21/07 10:05
Vinyl acetate	100	103		ug/L	103%	37 - 145	7033471	03/21/07 10:05
Vinyl chloride	20.0	15.4		ug/L	77%	10 - 251	7033471	03/21/07 10:05
o-Xylene	20.0	20.9		ug/L	104%	82 - 131	7033471	03/21/07 10:05
m,p-Xylene	40.0	40.7		ug/L	102%	79 - 134	7033471	03/21/07 10:05
Xylenes, total	60.0	61.6		ug/L	103%	83 - 130	7033471	03/21/07 10:05
Surrogate: 1,2-Dichloroethane-d4	30.0	31.3			104%	62 - 142	7033471	03/21/07 10:05
Surrogate: Dibromofluoromethane	30.0	31.5			105%	78 - 123	7033471	03/21/07 10:05
Surrogate: Toluene-d8	30.0	28.2			94%	79 - 120	7033471	03/21/07 10:05
Surrogate: 4-Bromofluorobenzene	30.0	28.8			96%	75 - 133	7033471	03/21/07 10:05

### Acid and Base/Neutral Extractables by EPA Method 625

<b>7033234-BS1</b>								
Acenaphthene	50.0	36.6		ug/L	73%	47 - 145	7033234	03/23/07 08:09
Acenaphthylene	50.0	36.2		ug/L	72%	33 - 145	7033234	03/23/07 08:09
Aniline	50.0	42.4		ug/L	85%	46 - 134	7033234	03/23/07 08:09
Anthracene	50.0	44.6		ug/L	89%	27 - 133	7033234	03/23/07 08:09
Benzidine	50.0	ND	L2	ug/L	0%	5 - 86	7033234	03/26/07 05:44
Benzo (a) anthracene	50.0	42.0		ug/L	84%	33 - 143	7033234	03/23/07 08:09
Benzo (a) pyrene	50.0	43.1		ug/L	86%	17 - 163	7033234	03/23/07 08:09
Benzo (b) fluoranthene	50.0	39.9		ug/L	80%	24 - 159	7033234	03/23/07 08:09
Benzo (g,h,i) perylene	50.0	43.1		ug/L	86%	10 - 219	7033234	03/23/07 08:09
Benzo (k) fluoranthene	50.0	39.8		ug/L	80%	11 - 162	7033234	03/23/07 08:09
4-Bromophenyl phenyl ether	50.0	36.0		ug/L	72%	53 - 127	7033234	03/23/07 08:09
Butyl benzyl phthalate	50.0	50.9		ug/L	102%	10 - 152	7033234	03/23/07 08:09
4-Chloroaniline	50.0	37.0		ug/L	74%	36 - 108	7033234	03/23/07 08:09
Carbazole	50.0	41.3		ug/L	83%	73 - 131	7033234	03/23/07 08:09

Client Barr Engineering (14336)  
3236 Emerald Lane  
Jefferson City, MO 65109  
Attn Ty Morris

Work Order: NQC2197  
Project Name: Bonne Terre Mine Tailings Site 25/86-014  
Project Number: Bonne Terre Mine Tailings Site 25/86-014  
Received: 03/16/07 08:00

## PROJECT QUALITY CONTROL DATA LCS - Cont.

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
<b>Acid and Base/Neutral Extractables by EPA Method 625</b>								
<b>7033234-BS1</b>								
4-Chloro-3-methylphenol	50.0	35.2		ug/L	70%	22 - 147	7033234	03/23/07 08:09
Bis(2-chloroethoxy)methane	50.0	41.0		ug/L	82%	33 - 184	7033234	03/23/07 08:09
Benzoic acid	50.0	4.07	L2	ug/L	8%	10 - 47	7033234	03/23/07 08:09
Benzyl alcohol	50.0	36.8		ug/L	74%	19 - 94	7033234	03/23/07 08:09
Bis(2-chloroethyl)ether	50.0	40.4		ug/L	81%	12 - 158	7033234	03/23/07 08:09
Bis(2-chloroisopropyl)ether	50.0	39.1		ug/L	78%	36 - 166	7033234	03/23/07 08:09
2-Choronaphthalene	50.0	33.2		ug/L	66%	60 - 118	7033234	03/23/07 08:09
2-Chlorophenol	50.0	36.7		ug/L	73%	23 - 134	7033234	03/23/07 08:09
4-Chlorophenyl phenyl ether	50.0	37.4		ug/L	75%	25 - 158	7033234	03/23/07 08:09
Chrysene	50.0	40.8		ug/L	82%	17 - 168	7033234	03/23/07 08:09
Decane	50.0	34.5		ug/L	69%	10 - 262	7033234	03/23/07 08:09
Dibenz (a,h) anthracene	50.0	41.8		ug/L	84%	10 - 227	7033234	03/23/07 08:09
Di-n-butyl phthalate	50.0	47.6		ug/L	95%	10 - 118	7033234	03/23/07 08:09
2,3-Dichloroaniline	50.0	56.5		ug/L	113%	68 - 134	7033234	03/23/07 08:09
1,3-Dichlorobenzene	50.0	28.4		ug/L	57%	10 - 172	7033234	03/23/07 08:09
1,4-Dichlorobenzene	50.0	27.4		ug/L	55%	20 - 124	7033234	03/23/07 08:09
1,2-Dichlorobenzene	50.5	28.0		ug/L	55%	32 - 129	7033234	03/23/07 08:09
3,3-Dichlorobenzidine	50.0	55.5		ug/L	111%	10 - 262	7033234	03/23/07 08:09
2,4-Dichlorophenol	50.0	34.3		ug/L	69%	39 - 135	7033234	03/23/07 08:09
Diethyl phthalate	50.0	41.6		ug/L	83%	10 - 114	7033234	03/23/07 08:09
2,4-Dimethylphenol	50.0	33.2		ug/L	66%	32 - 119	7033234	03/23/07 08:09
Dimethyl phthalate	50.0	40.5		ug/L	81%	10 - 112	7033234	03/23/07 08:09
4,6-Dinitro-2-methylphenol	50.0	24.6		ug/L	49%	10 - 181	7033234	03/23/07 08:09
2,4-Dinitrophenol	50.0	18.6		ug/L	37%	10 - 191	7033234	03/23/07 08:09
2,4-Dinitrotoluene	50.0	41.9		ug/L	84%	39 - 139	7033234	03/23/07 08:09
2,6-Dinitrotoluene	50.0	43.1		ug/L	86%	50 - 158	7033234	03/23/07 08:09
Di-n-octyl phthalate	50.0	52.7		ug/L	105%	10 - 146	7033234	03/23/07 08:09
1,2-Diphenylhydrazine	50.0	41.6		ug/L	83%	46 - 121	7033234	03/23/07 08:09
Bis(2-ethylhexyl)phthalate	50.0	54.6		ug/L	109%	10 - 158	7033234	03/23/07 08:09
Fluoranthene	50.0	39.2		ug/L	78%	26 - 137	7033234	03/23/07 08:09
Fluorene	50.0	38.6		ug/L	77%	59 - 121	7033234	03/23/07 08:09
Hexachlorobenzene	50.0	41.4		ug/L	83%	10 - 152	7033234	03/23/07 08:09
Hexachlorobutadiene	50.0	25.1		ug/L	50%	24 - 116	7033234	03/23/07 08:09
Hexachlorocyclopentadiene	50.0	16.3		ug/L	33%	10 - 102	7033234	03/23/07 08:09
Hexachloroethane	50.0	26.8		ug/L	54%	40 - 113	7033234	03/23/07 08:09
Indeno (1,2,3-cd) pyrene	50.0	42.0		ug/L	84%	10 - 171	7033234	03/23/07 08:09
Isophorone	50.0	40.1		ug/L	80%	21 - 196	7033234	03/23/07 08:09
2-Methylphenol	50.0	32.8		ug/L	66%	55 - 126	7033234	03/23/07 08:09
3/4-Methylphenol	50.0	34.7	L2	ug/L	69%	76 - 107	7033234	03/23/07 08:09
Naphthalene	50.0	27.1		ug/L	54%	21 - 133	7033234	03/23/07 08:09
Nitrobenzene	50.0	33.5		ug/L	67%	35 - 180	7033234	03/23/07 08:09

Client	Barr Engineering (14336)	Work Order:	NQC2197
	3236 Emerald Lane	Project Name:	Bonne Terre Mine Tailings Site 25/86-014
	Jefferson City, MO 65109	Project Number:	Bonne Terre Mine Tailings Site 25/86-014
Attn	Ty Morris	Received:	03/16/07 08:00

**PROJECT QUALITY CONTROL DATA**  
**LCS - Cont.**

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
<b>Acid and Base/Neutral Extractables by EPA Method 625</b>								
<b>7033234-BS1</b>								
2-Nitrophenol	50.0	36.6		ug/L	73%	29 - 182	7033234	03/23/07 08:09
4-Nitrophenol	50.0	16.5		ug/L	33%	10 - 132	7033234	03/23/07 08:09
N-Nitrosodimethylamine	50.0	25.6		ug/L	51%	24 - 72	7033234	03/23/07 08:09
N-Nitrosodiphenylamine	50.0	55.0		ug/L	110%	77 - 175	7033234	03/23/07 08:09
N-Nitrosodi-n-propylamine	50.0	43.6		ug/L	87%	10 - 230	7033234	03/23/07 08:09
n-Octadecane	50.5	38.3		ug/L	76%	65 - 123	7033234	03/23/07 08:09
Pentachlorophenol	50.0	42.9		ug/L	86%	14 - 176	7033234	03/23/07 08:09
2-Methylnaphthalene	50.0	29.3		ug/L	59%	28 - 115	7033234	03/23/07 08:09
Phenanthrene	50.0	39.6		ug/L	79%	54 - 120	7033234	03/23/07 08:09
1-Methylnaphthalene	50.5	26.9		ug/L	53%	38 - 100	7033234	03/23/07 08:09
Phenol	50.0	19.6		ug/L	39%	10 - 112	7033234	03/23/07 08:09
Pyrene	50.0	45.0		ug/L	90%	52 - 115	7033234	03/23/07 08:09
Pyridine	50.0	17.5		ug/L	35%	33 - 158	7033234	03/23/07 08:09
1,2,4-Trichlorobenzene	50.0	24.6		ug/L	49%	44 - 142	7033234	03/23/07 08:09
2,4,6-Trichlorophenol	50.0	38.4		ug/L	77%	37 - 144	7033234	03/23/07 08:09
Dibenzofuran	50.0	38.3		ug/L	77%	49 - 111	7033234	03/23/07 08:09
2,4,5-Trichlorophenol	50.0	36.7		ug/L	73%	40 - 121	7033234	03/23/07 08:09
<i>Surrogate: Terphenyl-d14</i>	50.2	42.5			85%	32 - 151	7033234	03/23/07 08:09
<i>Surrogate: 2,4,6-Tribromophenol</i>	50.2	39.0			78%	26 - 148	7033234	03/23/07 08:09
<i>Surrogate: Phenol-d5</i>	50.2	16.7			33%	10 - 94	7033234	03/23/07 08:09
<i>Surrogate: 2-Fluorobiphenyl</i>	50.2	35.6			71%	23 - 130	7033234	03/23/07 08:09
<i>Surrogate: 2-Fluorophenol</i>	50.2	22.7			45%	10 - 97	7033234	03/23/07 08:09
<i>Surrogate: Nitrobenzene-d5</i>	50.2	33.2			66%	38 - 136	7033234	03/23/07 08:09
<b>7033234-BS2</b>								
3,4-Dichlorophenol	50.0	28.8		ug/L	58%	39 - 109	7033234	03/23/07 10:16

Client	Barr Engineering (14336) 3236 Emerald Lane Jefferson City, MO 65109	Work Order:	NQC2197
		Project Name:	Bonne Terre Mine Tailings Site 25/86-014
		Project Number:	Bonne Terre Mine Tailings Site 25/86-014
Attn	Ty Morris	Received:	03/16/07 08:00

**PROJECT QUALITY CONTROL DATA**  
**LCS Dup**

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
<b>General Chemistry Parameters</b>												
<b>7032987-BSD1</b>												
Total Suspended Solids	95.0			mg/L	100	95%	90 - 110	5	20	7032987		03/19/07 15:17
<b>7033089-BSD1</b>												
Nitrate/Nitrite as N	5.89			mg/L	6.00	98%	90 - 110	2	20	7033089		03/17/07 00:07
<b>7034867-BSD1</b>												
Oil & Grease HEM	42.9			mg/L	40.0	107%	78 - 114	5	18	7034867		03/27/07 16:46
<b>Total Metals by EPA Method 6010B</b>												
<b>7033499-BSD1</b>												
Cadmium	20.5			mg/kg	20.0	102%	80 - 120	3	20	7033499		03/21/07 22:44
Lead	102			mg/kg	100	102%	80 - 120	2	20	7033499		03/21/07 22:44
Zinc	102			mg/kg	100	102%	80 - 120	4	20	7033499		03/21/07 22:44
<b>Total Metals by EPA Method 200.7</b>												
<b>7033322-BSD1</b>												
Aluminum	1.96			mg/L	2.00	98%	85 - 115	1	20	7033322		03/20/07 09:00
Antimony	0.0912			mg/L	0.100	91%	85 - 115	4	20	7033322		03/20/07 09:00
Arsenic	0.0502			mg/L	0.0500	100%	85 - 115	1	20	7033322		03/20/07 09:00
Barium	2.06			mg/L	2.00	103%	85 - 115	1	20	7033322		03/20/07 09:00
Beryllium	0.0523			mg/L	0.0500	105%	85 - 115	2	20	7033322		03/20/07 09:00
Boron	1.05			mg/L	1.00	105%	85 - 115	0.9	20	7033322		03/20/07 09:00
Cadmium	0.0502			mg/L	0.0500	100%	85 - 115	3	20	7033322		03/20/07 09:00
Calcium	4.84			mg/L	5.00	97%	85 - 115	2	20	7033322		03/20/07 09:00
Chromium	0.204			mg/L	0.200	102%	85 - 115	2	20	7033322		03/20/07 09:00
Cobalt	0.507			mg/L	0.500	101%	85 - 115	2	20	7033322		03/20/07 09:00
Copper	0.248			mg/L	0.250	99%	85 - 115	1	20	7033322		03/20/07 09:00
Iron	1.04			mg/L	1.00	104%	85 - 115	4	20	7033322		03/20/07 09:00
Lead	0.0459			mg/L	0.0500	92%	85 - 115	5	20	7033322		03/20/07 09:00
Magnesium	4.77			mg/L	5.00	95%	85 - 115	2	20	7033322		03/20/07 09:00
Manganese	0.516			mg/L	0.500	103%	85 - 115	2	20	7033322		03/20/07 09:00
Molybdenum	0.461			mg/L	0.500	92%	85 - 115	4	20	7033322		03/20/07 09:00
Nickel	0.502			mg/L	0.500	100%	85 - 115	2	20	7033322		03/20/07 09:00
Selenium	0.0529			mg/L	0.0500	106%	85 - 115	2	20	7033322		03/20/07 09:00
Silver	0.0479			mg/L	0.0500	96%	85 - 115	5	20	7033322		03/20/07 09:00
Sodium	4.29			mg/L	5.00	86%	85 - 115	10	20	7033322		03/20/07 09:00
Thallium	0.0554			mg/L	0.0500	111%	85 - 115	0.4	20	7033322		03/20/07 09:00
Zinc	0.518			mg/L	0.500	104%	85 - 115	2	20	7033322		03/20/07 09:00
<b>Mercury by EPA 245.1</b>												
<b>7033571-BSD1</b>												
Mercury	0.00101			mg/L	0.00100	101%	85 - 115	3	20	7033571		03/22/07 15:04

Client Barr Engineering (14336)  
3236 Emerald Lane  
Jefferson City, MO 65109  
Attn Ty Morris

Work Order: NQC2197  
Project Name: Bonne Terre Mine Tailings Site 25/86-014  
Project Number: Bonne Terre Mine Tailings Site 25/86-014  
Received: 03/16/07 08:00

**PROJECT QUALITY CONTROL DATA**  
**LCS Dup - Cont.**

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	Target Range	RPD Limit	Batch	Sample Duplicated	Analyzed Date/Time
Mercury by EPA 245.1											

Mercury by EPA 245.1

Client	Barr Engineering (14336) 3236 Emerald Lane Jefferson City, MO 65109	Work Order:	NQC2197
		Project Name:	Bonne Terre Mine Tailings Site 25/86-014
		Project Number:	Bonne Terre Mine Tailings Site 25/86-014
Attn	Ty Morris	Received:	03/16/07 08:00

**PROJECT QUALITY CONTROL DATA**  
**Matrix Spike**

Analyte	Orig. Val.	MS Val	Q	Units	Spike Conc	% Rec.	Target Range	Batch	Sample Spiked	Analyzed Date/Time
<b>General Chemistry Parameters</b>										
<b>7033071-MS1</b>										
Alkalinity, Total (CaCO <sub>3</sub> )										
	139	236		ug/mL	100	97%	80 - 120	7033071	NQC2208-02	03/20/07 18:09
<b>7033089-MS1</b>										
Nitrate/Nitrite as N										
	2.45	7.94		mg/L	6.00	92%	90 - 110	7033089	NQC2239-02	03/17/07 00:20
<b>7033286-MS1</b>										
Total Organic Carbon										
	98.2	116		ug/mL	20.0	89%	75 - 127	7033286	NQC2097-01	03/18/07 11:09
<b>7033424-MS1</b>										
Specific conductance										
	1180	1270		umho/cm	101	89%	0 - 200	7033424	NQC1676-01	03/19/07 16:01
<b>7034197-MS1</b>										
Chemical Oxygen Demand										
	2.88	47.7		ug/mL	50.0	90%	90 - 110	7034197	NQC2197-01	03/22/07 19:46
<b>7034662-MS1</b>										
Ammonia as N										
	0.184	4.74		ug/mL	5.00	91%	90 - 110	7034662	NQC2239-02	03/26/07 19:07
<b>7034666-MS1</b>										
Fluoride										
	0.137	1.91		ug/mL	2.00	89%	80 - 120	7034666	NQC2197-01	03/27/07 02:53
<b>7034769-MS1</b>										
Total Kjeldahl Nitrogen										
	0.173	2.49		mg/L	2.50	93%	90 - 110	7034769	NQC2239-02	03/27/07 19:06
<b>7034773-MS1</b>										
Phosphorus										
	0.0260	1.96		ug/mL	2.00	97%	76 - 111	7034773	NQC2190-01	03/27/07 10:31
<b>7034774-MS1</b>										
Phenolics										
	ND	0.569	M2	ug/mL	0.750	76%	80 - 120	7034774	NQC2197-01	03/27/07 10:59
<b>7034775-MS1</b>										
Cyanide										
	0.00160	0.0875		ug/mL	0.100	86%	72 - 121	7034775	NQC2197-01	03/27/07 11:53
<b>7034867-MS1</b>										
Oil & Grease HEM										
	0.417	42.9		mg/L	40.0	106%	78 - 114	7034867	NQC1995-02	03/27/07 16:46
<b>Total Metals by EPA Method 6010B</b>										
<b>7033499-MS1</b>										
Cadmium										
	87.7	92.1	MHA	mg/kg	19.5	23%	75 - 125	7033499	NQC2197-02	03/21/07 23:27
Lead										
	4480	3400	MHA	mg/kg	97.3	-1110%	75 - 125	7033499	NQC2197-02	03/22/07 10:57
Zinc										
	5110	4720	MHA	mg/kg	97.3	-401%	75 - 125	7033499	NQC2197-02	03/22/07 10:57

**Total Metals by EPA Method 200.7**

Client	Barr Engineering (14336) 3236 Emerald Lane Jefferson City, MO 65109	Work Order:	NQC2197
		Project Name:	Bonne Terre Mine Tailings Site 25/86-014
		Project Number:	Bonne Terre Mine Tailings Site 25/86-014
Attn	Ty Morris	Received:	03/16/07 08:00

**PROJECT QUALITY CONTROL DATA**  
**Matrix Spike - Cont.**

Analyte	Orig. Val.	MS Val	Q	Units	Spike Conc	% Rec.	Target Range	Batch	Sample Spiked	Analyzed Date/Time
<b>Total Metals by EPA Method 200.7</b>										
<b>7033322-MS1</b>										
Aluminum	ND	2.33		mg/L	2.00	116%	70 - 130	7033322	NQC1995-01	03/20/07 09:09
Antimony	ND	0.0950		mg/L	0.100	95%	70 - 130	7033322	NQC1995-01	03/20/07 09:09
Arsenic	ND	0.0412		mg/L	0.0500	82%	70 - 130	7033322	NQC1995-01	03/20/07 09:09
Barium	0.00300	2.14		mg/L	2.00	107%	70 - 130	7033322	NQC1995-01	03/20/07 09:09
Beryllium	ND	0.0495		mg/L	0.0500	99%	70 - 130	7033322	NQC1995-01	03/20/07 09:09
Boron	0.167	1.25		mg/L	1.00	108%	70 - 130	7033322	NQC1995-01	03/20/07 09:09
Cadmium	0.00170	0.0525		mg/L	0.0500	102%	70 - 130	7033322	NQC1995-01	03/20/07 09:09
Chromium	0.00970	0.216		mg/L	0.200	103%	70 - 130	7033322	NQC1995-01	03/20/07 09:09
Cobalt	ND	0.502		mg/L	0.500	100%	70 - 130	7033322	NQC1995-01	03/20/07 09:09
Copper	0.00300	0.280		mg/L	0.250	111%	70 - 130	7033322	NQC1995-01	03/20/07 09:09
Iron	ND	1.05		mg/L	1.00	105%	70 - 130	7033322	NQC1995-01	03/20/07 09:09
Lead	0.00430	0.0522		mg/L	0.0500	96%	70 - 130	7033322	NQC1995-01	03/20/07 09:09
Manganese	0.0116	0.529		mg/L	0.500	103%	70 - 130	7033322	NQC1995-01	03/20/07 09:09
Molybdenum	0.0452	0.453		mg/L	0.500	82%	70 - 130	7033322	NQC1995-01	03/20/07 09:09
Nickel	ND	0.510		mg/L	0.500	102%	70 - 130	7033322	NQC1995-01	03/20/07 09:09
Selenium	0.0343	0.0856		mg/L	0.0500	103%	70 - 130	7033322	NQC1995-01	03/20/07 09:09
Silver	ND	0.0562		mg/L	0.0500	112%	70 - 130	7033322	NQC1995-01	03/20/07 09:09
Thallium	ND	0.0586		mg/L	0.0500	117%	70 - 130	7033322	NQC1995-01	03/20/07 12:37
Zinc	0.369	0.902		mg/L	0.500	107%	70 - 130	7033322	NQC1995-01	03/20/07 09:09
<b>Mercury by EPA 245.1</b>										
<b>7033571-MS1</b>										
Mercury										
ND	0.00103			mg/L	0.00100	103%	70 - 130	7033571	NQC2197-01	03/22/07 15:09
<b>Organochlorine Pesticides and/or PCBs by EPA Method 608</b>										
<b>7033200-MS1</b>										
PCB-1248										
ND	7.29			ug/L	10.0	73%	38 - 158	7033200	NQC2197-01	03/19/07 16:13
Surrogate: Tetrachloro-meta-xylene										
ND	0.824			ug/L	1.00	82%	44 - 131	7033200	NQC2197-01	03/19/07 16:13
Surrogate: Decachlorobiphenyl										
ND	0.652			ug/L	1.00	65%	24 - 110	7033200	NQC2197-01	03/19/07 16:13
<b>7033201-MS1</b>										
Aldrin										
ND	0.680			ug/L	1.00	68%	42 - 122	7033201	NQC2197-01	03/20/07 03:40
delta-BHC										
ND	0.710			ug/L	1.00	71%	19 - 140	7033201	NQC2197-01	03/20/07 03:40
alpha-BHC										
ND	0.680			ug/L	1.00	68%	37 - 134	7033201	NQC2197-01	03/20/07 03:40
beta-BHC										
ND	0.750			ug/L	1.00	75%	17 - 147	7033201	NQC2197-01	03/20/07 03:40
gamma-BHC (Lindane)										
ND	0.690			ug/L	1.00	69%	32 - 127	7033201	NQC2197-01	03/20/07 03:40
alpha-Chlordane										
ND	0.740			ug/L	1.00	74%	45 - 119	7033201	NQC2197-01	03/20/07 03:40
gamma-Chlordane										
ND	0.710			ug/L	1.00	71%	45 - 119	7033201	NQC2197-01	03/20/07 03:40

Client	Barr Engineering (14336) 3236 Emerald Lane Jefferson City, MO 65109	Work Order:	NQC2197
		Project Name:	Bonne Terre Mine Tailings Site 25/86-014
		Project Number:	Bonne Terre Mine Tailings Site 25/86-014
Attn	Ty Morris	Received:	03/16/07 08:00

**PROJECT QUALITY CONTROL DATA**  
**Matrix Spike - Cont.**

Analyte	Orig. Val.	MS Val	Q	Units	Spike Conc	% Rec.	Target Range	Batch	Sample Spiked	Analyzed Date/Time
<b>Organochlorine Pesticides and/or PCBs by EPA Method 608</b>										
<b>7033201-MS1</b>										
4,4'-DDD	ND	0.740		ug/L	1.00	74%	31 - 141	7033201	NQC2197-01	03/20/07 03:40
4,4'-DDE	ND	0.760		ug/L	1.00	76%	30 - 145	7033201	NQC2197-01	03/20/07 03:40
4,4'-DDT	ND	0.760		ug/L	1.00	76%	25 - 160	7033201	NQC2197-01	03/20/07 03:40
Dieldrin	ND	0.740		ug/L	1.00	74%	36 - 146	7033201	NQC2197-01	03/20/07 03:40
Endosulfan I	ND	0.690		ug/L	1.00	69%	45 - 153	7033201	NQC2197-01	03/20/07 03:40
Endosulfan II	ND	0.740		ug/L	1.00	74%	10 - 202	7033201	NQC2197-01	03/20/07 03:40
Endosulfan sulfate	ND	0.690		ug/L	1.00	69%	26 - 144	7033201	NQC2197-01	03/20/07 03:40
Endrin	ND	0.810		ug/L	1.00	81%	30 - 147	7033201	NQC2197-01	03/20/07 03:40
Endrin aldehyde	ND	0.650		ug/L	1.00	65%	48 - 142	7033201	NQC2197-01	03/20/07 03:40
Endrin ketone	ND	0.670		ug/L	1.00	67%	43 - 163	7033201	NQC2197-01	03/20/07 03:40
Heptachlor	ND	0.700		ug/L	1.00	70%	34 - 111	7033201	NQC2197-01	03/20/07 03:40
Heptachlor epoxide	ND	0.710		ug/L	1.00	71%	37 - 142	7033201	NQC2197-01	03/20/07 03:40
Methoxychlor	ND	0.760		ug/L	1.00	76%	53 - 156	7033201	NQC2197-01	03/20/07 03:40
<i>Surrogate: Tetrachloro-meta-xylene</i>	1.39			ug/L	2.00	70%	34 - 165	7033201	NQC2197-01	03/20/07 03:40
<i>Surrogate: Decachlorobiphenyl</i>	1.39			ug/L	2.00	70%	13 - 153	7033201	NQC2197-01	03/20/07 03:40

**Purgeable Organic Compounds by EPA Method 624**

<b>7033471-MS1</b>										
Acetone	ND	112		ug/L	100	112%	57 - 148	7033471	NQC2177-01	03/21/07 16:24
Acrolein	ND	173	M7	ug/L	100	173%	47 - 149	7033471	NQC2177-01	03/21/07 16:24
Acrylonitrile	ND	111		ug/L	100	111%	77 - 124	7033471	NQC2177-01	03/21/07 16:24
Benzene	ND	24.8		ug/L	20.0	124%	37 - 151	7033471	NQC2177-01	03/21/07 16:24
Bromobenzene	ND	21.4		ug/L	20.0	107%	70 - 127	7033471	NQC2177-01	03/21/07 16:24
Bromoform	ND	25.4		ug/L	20.0	127%	82 - 144	7033471	NQC2177-01	03/21/07 16:24
Bromodichloromethane	ND	25.4		ug/L	20.0	127%	35 - 155	7033471	NQC2177-01	03/21/07 16:24
Bromoform	ND	18.2		ug/L	20.0	91%	45 - 169	7033471	NQC2177-01	03/21/07 16:24
Bromomethane	ND	17.4		ug/L	20.0	87%	10 - 242	7033471	NQC2177-01	03/21/07 16:24
n-Butylbenzene	ND	20.6		ug/L	20.0	103%	63 - 146	7033471	NQC2177-01	03/21/07 16:24
sec-Butylbenzene	ND	22.0		ug/L	20.0	110%	66 - 143	7033471	NQC2177-01	03/21/07 16:24
tert-Butylbenzene	ND	22.8		ug/L	20.0	114%	67 - 142	7033471	NQC2177-01	03/21/07 16:24
Carbon disulfide	ND	25.0	M7	ug/L	20.0	125%	76 - 121	7033471	NQC2177-01	03/21/07 16:24
Carbon Tetrachloride	ND	25.8		ug/L	20.0	129%	70 - 140	7033471	NQC2177-01	03/21/07 16:24
Chlorobenzene	ND	22.6		ug/L	20.0	113%	37 - 160	7033471	NQC2177-01	03/21/07 16:24
Chlorodibromomethane	ND	22.3		ug/L	20.0	112%	53 - 149	7033471	NQC2177-01	03/21/07 16:24
Chloroethane	ND	21.3		ug/L	20.0	106%	14 - 230	7033471	NQC2177-01	03/21/07 16:24
2-Chloroethylvinyl ether	ND	3.08	M8	ug/L	100	3%	10 - 305	7033471	NQC2177-01	03/21/07 16:24
Chloroform	ND	27.1		ug/L	20.0	136%	51 - 138	7033471	NQC2177-01	03/21/07 16:24
Chloromethane	ND	14.8		ug/L	20.0	74%	10 - 273	7033471	NQC2177-01	03/21/07 16:24

Client	Barr Engineering (14336) 3236 Emerald Lane Jefferson City, MO 65109	Work Order:	NQC2197
		Project Name:	Bonne Terre Mine Tailings Site 25/86-014
		Project Number:	Bonne Terre Mine Tailings Site 25/86-014
Attn	Ty Morris	Received:	03/16/07 08:00

**PROJECT QUALITY CONTROL DATA**  
**Matrix Spike - Cont.**

Analyte	Orig. Val.	MS Val	Q	Units	Spike Conc	% Rec.	Target Range	Batch	Sample Spiked	Analyzed Date/Time
<b>Purgeable Organic Compounds by EPA Method 624</b>										
<b>7033471-MS1</b>										
2-Chlorotoluene	ND	22.4		ug/L	20.0	112%	85 - 130	7033471	NQC2177-01	03/21/07 16:24
4-Chlorotoluene	ND	22.1		ug/L	20.0	110%	86 - 127	7033471	NQC2177-01	03/21/07 16:24
1,2-Dibromo-3-chloropropane	ND	13.7	M8	ug/L	20.0	68%	71 - 142	7033471	NQC2177-01	03/21/07 16:24
1,2-Dibromoethane (EDB)	ND	23.5		ug/L	20.0	118%	90 - 132	7033471	NQC2177-01	03/21/07 16:24
Dibromomethane	ND	25.9	M7	ug/L	20.0	130%	84 - 127	7033471	NQC2177-01	03/21/07 16:24
1,2-Dichlorobenzene	2.45	25.0		ug/L	20.0	113%	18 - 190	7033471	NQC2177-01	03/21/07 16:24
1,4-Dichlorobenzene	ND	22.6		ug/L	20.0	113%	18 - 190	7033471	NQC2177-01	03/21/07 16:24
1,3-Dichlorobenzene	ND	22.7		ug/L	20.0	114%	59 - 156	7033471	NQC2177-01	03/21/07 16:24
Dichlorodifluoromethane	ND	18.5		ug/L	20.0	92%	10 - 157	7033471	NQC2177-01	03/21/07 16:24
1,2-Dichloroethane	ND	27.2		ug/L	20.0	136%	49 - 155	7033471	NQC2177-01	03/21/07 16:24
1,1-Dichloroethane	ND	25.5		ug/L	20.0	128%	59 - 155	7033471	NQC2177-01	03/21/07 16:24
cis-1,2-Dichloroethene	ND	24.9		ug/L	20.0	124%	79 - 132	7033471	NQC2177-01	03/21/07 16:24
trans-1,2-Dichloroethene	ND	24.9		ug/L	20.0	124%	54 - 156	7033471	NQC2177-01	03/21/07 16:24
1,2-Dichloroethene (total)	ND	49.8		ug/L	40.0	124%	54 - 156	7033471	NQC2177-01	03/21/07 16:24
1,1-Dichloroethene	ND	26.4		ug/L	20.0	132%	10 - 234	7033471	NQC2177-01	03/21/07 16:24
1,2-Dichloropropane	ND	22.0		ug/L	20.0	110%	10 - 210	7033471	NQC2177-01	03/21/07 16:24
1,3-Dichloropropane	ND	22.9		ug/L	20.0	114%	88 - 130	7033471	NQC2177-01	03/21/07 16:24
2,2-Dichloropropane	ND	23.3		ug/L	20.0	116%	38 - 155	7033471	NQC2177-01	03/21/07 16:24
cis-1,3-Dichloropropene	ND	22.8		ug/L	20.0	114%	10 - 227	7033471	NQC2177-01	03/21/07 16:24
trans-1,3-Dichloropropene	ND	23.5		ug/L	20.0	118%	17 - 183	7033471	NQC2177-01	03/21/07 16:24
1,1-Dichloropropene	ND	26.9	M7	ug/L	20.0	134%	88 - 133	7033471	NQC2177-01	03/21/07 16:24
Ethylbenzene	ND	23.1		ug/L	20.0	116%	37 - 162	7033471	NQC2177-01	03/21/07 16:24
Hexachlorobutadiene	ND	14.6		ug/L	20.0	73%	65 - 138	7033471	NQC2177-01	03/21/07 16:24
Isopropylbenzene	ND	21.6		ug/L	20.0	108%	72 - 131	7033471	NQC2177-01	03/21/07 16:24
p-Isopropyltoluene	ND	21.9		ug/L	20.0	110%	65 - 139	7033471	NQC2177-01	03/21/07 16:24
Methyl tert-Butyl Ether	ND	20.1		ug/L	20.0	100%	80 - 122	7033471	NQC2177-01	03/21/07 16:24
Methylene Chloride	0.590	21.8		ug/L	20.0	106%	10 - 221	7033471	NQC2177-01	03/21/07 16:24
4-Methyl-2-pentanone	ND	109		ug/L	100	109%	72 - 130	7033471	NQC2177-01	03/21/07 16:24
Naphthalene	ND	12.1	M8	ug/L	20.0	60%	71 - 152	7033471	NQC2177-01	03/21/07 16:24
n-Propylbenzene	ND	22.2		ug/L	20.0	111%	82 - 136	7033471	NQC2177-01	03/21/07 16:24
Styrene	ND	27.5		ug/L	20.0	138%	89 - 142	7033471	NQC2177-01	03/21/07 16:24
1,1,1,2-Tetrachloroethane	ND	21.8		ug/L	20.0	109%	81 - 136	7033471	NQC2177-01	03/21/07 16:24
1,1,2,2-Tetrachloroethane	ND	22.6		ug/L	20.0	113%	46 - 157	7033471	NQC2177-01	03/21/07 16:24
Tetrachloroethene	ND	23.3		ug/L	20.0	116%	64 - 148	7033471	NQC2177-01	03/21/07 16:24
Toluene	ND	23.3		ug/L	20.0	116%	47 - 150	7033471	NQC2177-01	03/21/07 16:24
1,2,3-Trichlorobenzene	ND	12.7	M8	ug/L	20.0	64%	66 - 143	7033471	NQC2177-01	03/21/07 16:24
1,2,4-Trichlorobenzene	ND	15.6		ug/L	20.0	78%	63 - 150	7033471	NQC2177-01	03/21/07 16:24

Client	Barr Engineering (14336) 3236 Emerald Lane Jefferson City, MO 65109	Work Order:	NQC2197
		Project Name:	Bonne Terre Mine Tailings Site 25/86-014
		Project Number:	Bonne Terre Mine Tailings Site 25/86-014
Attn	Ty Morris	Received:	03/16/07 08:00

**PROJECT QUALITY CONTROL DATA**  
**Matrix Spike - Cont.**

Analyte	Orig. Val.	MS Val	Q	Units	Spike Conc	% Rec.	Target Range	Batch	Sample Spiked	Analyzed Date/Time
<b>Purgeable Organic Compounds by EPA Method 624</b>										
<b>7033471-MS1</b>										
1,1,2-Trichloroethane	ND	24.3		ug/L	20.0	122%	52 - 150	7033471	NQC2177-01	03/21/07 16:24
1,1,1-Trichloroethane	ND	26.8		ug/L	20.0	134%	52 - 162	7033471	NQC2177-01	03/21/07 16:24
Trichloroethene	ND	25.5		ug/L	20.0	128%	71 - 157	7033471	NQC2177-01	03/21/07 16:24
Trichlorofluoromethane	ND	26.7		ug/L	20.0	134%	17 - 181	7033471	NQC2177-01	03/21/07 16:24
1,2,3-Trichloropropane	ND	20.6		ug/L	20.0	103%	44 - 151	7033471	NQC2177-01	03/21/07 16:24
1,1,1-Trichlorotrifluoroethane	ND	ND		ug/L			66 - 125	7033471	NQC2177-01	03/21/07 16:24
1,3,5-Trimethylbenzene	ND	22.7		ug/L	20.0	114%	76 - 135	7033471	NQC2177-01	03/21/07 16:24
1,2,4-Trimethylbenzene	ND	23.1		ug/L	20.0	116%	78 - 133	7033471	NQC2177-01	03/21/07 16:24
Vinyl acetate	ND	102		ug/L	100	102%	37 - 145	7033471	NQC2177-01	03/21/07 16:24
Vinyl chloride	ND	20.1		ug/L	20.0	100%	10 - 251	7033471	NQC2177-01	03/21/07 16:24
o-Xylene	ND	23.0		ug/L	20.0	115%	82 - 131	7033471	NQC2177-01	03/21/07 16:24
m,p-Xylene	ND	45.6		ug/L	40.0	114%	79 - 134	7033471	NQC2177-01	03/21/07 16:24
Xylenes, total	ND	68.6		ug/L	60.0	114%	83 - 130	7033471	NQC2177-01	03/21/07 16:24
Bis(chloromethyl)ether	ND	ND		ug/L			53 - 146	7033471	NQC2177-01	03/21/07 16:24
Surrogate: 1,2-Dichloroethane-d4		31.7		ug/L	30.0	106%	62 - 142	7033471	NQC2177-01	03/21/07 16:24
Surrogate: Dibromoformmethane		31.0		ug/L	30.0	103%	78 - 123	7033471	NQC2177-01	03/21/07 16:24
Surrogate: Toluene-d8		28.1		ug/L	30.0	94%	79 - 120	7033471	NQC2177-01	03/21/07 16:24
Surrogate: 4-Bromofluorobenzene		28.8		ug/L	30.0	96%	75 - 133	7033471	NQC2177-01	03/21/07 16:24
<b>Acid and Base/Neutral Extractables by EPA Method 625</b>										
<b>7033234-MS1</b>										
Acenaphthene	ND	35.1		ug/L	47.2	74%	47 - 145	7033234	NQC2177-01	03/23/07 10:42
Acenaphthylene	ND	36.4		ug/L	47.2	77%	33 - 145	7033234	NQC2177-01	03/23/07 10:42
Anthracene	ND	40.3		ug/L	47.2	85%	27 - 133	7033234	NQC2177-01	03/23/07 10:42
Benzidine	ND	ND	M8	ug/L	47.2	0%	5 - 86	7033234	NQC2177-01	03/23/07 10:42
Benzo (a) anthracene	ND	37.3		ug/L	47.2	79%	33 - 143	7033234	NQC2177-01	03/23/07 10:42
Benzo (b) fluoranthene	ND	41.6		ug/L	47.2	88%	24 - 159	7033234	NQC2177-01	03/23/07 10:42
Benzo (g,h,i) perylene	ND	39.4		ug/L	47.2	83%	10 - 219	7033234	NQC2177-01	03/23/07 10:42
Benzo (k) fluoranthene	ND	32.2		ug/L	47.2	68%	11 - 162	7033234	NQC2177-01	03/23/07 10:42
4-Bromophenyl phenyl ether	ND	32.7		ug/L	47.2	69%	53 - 127	7033234	NQC2177-01	03/23/07 10:42
Butyl benzyl phthalate	ND	43.9		ug/L	47.2	93%	10 - 152	7033234	NQC2177-01	03/23/07 10:42
4-Chloro-3-methylphenol	ND	32.0		ug/L	47.2	68%	22 - 147	7033234	NQC2177-01	03/23/07 10:42
Bis(2-chloroethoxy)methane	ND	35.6		ug/L	47.2	75%	33 - 184	7033234	NQC2177-01	03/23/07 10:42
Bis(2-chloroethyl)ether	ND	33.7		ug/L	47.2	71%	12 - 158	7033234	NQC2177-01	03/23/07 10:42
Bis(2-chloroisopropyl)ether	ND	37.4		ug/L	47.2	79%	36 - 166	7033234	NQC2177-01	03/23/07 10:42
2-Chloronaphthalene	ND	34.5		ug/L	47.2	73%	60 - 118	7033234	NQC2177-01	03/23/07 10:42
2-Chlorophenol	ND	31.5		ug/L	47.2	67%	23 - 134	7033234	NQC2177-01	03/23/07 10:42
4-Chlorophenyl phenyl ether	ND	37.1		ug/L	47.2	79%	25 - 158	7033234	NQC2177-01	03/23/07 10:42

Client	Barr Engineering (14336) 3236 Emerald Lane Jefferson City, MO 65109	Work Order:	NQC2197
		Project Name:	Bonne Terre Mine Tailings Site 25/86-014
		Project Number:	Bonne Terre Mine Tailings Site 25/86-014
Attn	Ty Morris	Received:	03/16/07 08:00

**PROJECT QUALITY CONTROL DATA**  
**Matrix Spike - Cont.**

Analyte	Orig. Val.	MS Val	Q	Units	Spike Conc	% Rec.	Target Range	Batch	Sample Spiked	Analyzed Date/Time
<b>Acid and Base/Neutral Extractables by EPA Method 625</b>										
<b>7033234-MS1</b>										
Chrysene	ND	35.2		ug/L	47.2	75%	17 - 168	7033234	NQC2177-01	03/23/07 10:42
Dibenz (a,h) anthracene	ND	39.3		ug/L	47.2	83%	10 - 227	7033234	NQC2177-01	03/23/07 10:42
Di-n-butyl phthalate	ND	42.3		ug/L	47.2	90%	10 - 118	7033234	NQC2177-01	03/23/07 10:42
1,3-Dichlorobenzene	ND	25.5		ug/L	47.2	54%	10 - 172	7033234	NQC2177-01	03/23/07 10:42
1,4-Dichlorobenzene	ND	26.6		ug/L	47.2	56%	20 - 124	7033234	NQC2177-01	03/23/07 10:42
1,2-Dichlorobenzene	ND	28.5		ug/L	47.6	60%	32 - 129	7033234	NQC2177-01	03/23/07 10:42
3,3-Dichlorobenzidine	ND	28.7		ug/L	47.2	61%	10 - 262	7033234	NQC2177-01	03/23/07 10:42
2,4-Dichlorophenol	ND	30.6		ug/L	47.2	65%	39 - 135	7033234	NQC2177-01	03/23/07 10:42
Diethyl phthalate	ND	37.7		ug/L	47.2	80%	10 - 114	7033234	NQC2177-01	03/23/07 10:42
2,4-Dimethylphenol	ND	31.8		ug/L	47.2	67%	32 - 119	7033234	NQC2177-01	03/23/07 10:42
Dimethyl phthalate	ND	37.7		ug/L	47.2	80%	10 - 112	7033234	NQC2177-01	03/23/07 10:42
4,6-Dinitro-2-methylphenol	ND	24.6		ug/L	47.2	52%	10 - 181	7033234	NQC2177-01	03/23/07 10:42
2,4-Dinitrophenol	ND	22.9		ug/L	47.2	49%	10 - 191	7033234	NQC2177-01	03/23/07 10:42
2,4-Dinitrotoluene	ND	37.3		ug/L	47.2	79%	39 - 139	7033234	NQC2177-01	03/23/07 10:42
2,6-Dinitrotoluene	ND	37.3		ug/L	47.2	79%	50 - 158	7033234	NQC2177-01	03/23/07 10:42
Di-n-octyl phthalate	ND	48.0		ug/L	47.2	102%	10 - 146	7033234	NQC2177-01	03/23/07 10:42
Bis(2-ethylhexyl)phthalate	ND	48.4		ug/L	47.2	103%	10 - 158	7033234	NQC2177-01	03/23/07 10:42
Fluoranthene	ND	35.8		ug/L	47.2	76%	26 - 137	7033234	NQC2177-01	03/23/07 10:42
Fluorene	ND	35.0		ug/L	47.2	74%	59 - 121	7033234	NQC2177-01	03/23/07 10:42
Hexachlorobenzene	ND	36.8		ug/L	47.2	78%	10 - 152	7033234	NQC2177-01	03/23/07 10:42
Hexachlorobutadiene	ND	26.7		ug/L	47.2	57%	24 - 116	7033234	NQC2177-01	03/23/07 10:42
Hexachlorocyclopentadiene	ND	19.4		ug/L	47.2	41%	10 - 102	7033234	NQC2177-01	03/23/07 10:42
Hexachloroethane	ND	28.1		ug/L	47.2	60%	40 - 113	7033234	NQC2177-01	03/23/07 10:42
Indeno (1,2,3-cd) pyrene	ND	39.3		ug/L	47.2	83%	10 - 171	7033234	NQC2177-01	03/23/07 10:42
Isophorone	ND	36.3		ug/L	47.2	77%	21 - 196	7033234	NQC2177-01	03/23/07 10:42
Naphthalene	ND	27.6		ug/L	47.2	58%	21 - 133	7033234	NQC2177-01	03/23/07 10:42
Nitrobenzene	ND	30.3		ug/L	47.2	64%	35 - 180	7033234	NQC2177-01	03/23/07 10:42
2-Nitrophenol	ND	31.4		ug/L	47.2	67%	29 - 182	7033234	NQC2177-01	03/23/07 10:42
4-Nitrophenol	ND	13.5		ug/L	47.2	29%	10 - 132	7033234	NQC2177-01	03/23/07 10:42
N-Nitrosodimethylamine	ND	20.4		ug/L	47.2	43%	24 - 72	7033234	NQC2177-01	03/23/07 10:42
N-Nitrosodiphenylamine	ND	51.6		ug/L	47.2	109%	77 - 175	7033234	NQC2177-01	03/23/07 10:42
N-Nitrosodi-n-propylamine	ND	38.1		ug/L	47.2	81%	10 - 230	7033234	NQC2177-01	03/23/07 10:42
Pentachlorophenol	ND	43.1		ug/L	47.2	91%	14 - 176	7033234	NQC2177-01	03/23/07 10:42
Phenanthrene	ND	34.8		ug/L	47.2	74%	54 - 120	7033234	NQC2177-01	03/23/07 10:42
Phenol	ND	15.7		ug/L	47.2	33%	10 - 112	7033234	NQC2177-01	03/23/07 10:42
Pyrene	ND	39.3		ug/L	47.2	83%	52 - 115	7033234	NQC2177-01	03/23/07 10:42
2,4,6-Trichlorophenol	ND	35.9		ug/L	47.2	76%	37 - 144	7033234	NQC2177-01	03/23/07 10:42

Client	Barr Engineering (14336) 3236 Emerald Lane Jefferson City, MO 65109	Work Order:	NQC2197
		Project Name:	Bonne Terre Mine Tailings Site 25/86-014
		Project Number:	Bonne Terre Mine Tailings Site 25/86-014
Attn	Ty Morris	Received:	03/16/07 08:00

**PROJECT QUALITY CONTROL DATA**  
**Matrix Spike - Cont.**

Analyte	Orig. Val.	MS Val	Q	Units	Spike Conc	% Rec.	Target Range	Batch	Sample Spiked	Analyzed Date/Time
<b>Acid and Base/Neutral Extractables by EPA Method 625</b>										
<b>7033234-MS1</b>										
<i>Surrogate: Terphenyl-d14</i>		33.9		ug/L	47.4	72%	32 - 151	7033234	NQC2177-01	03/23/07 10:42
<i>Surrogate: 2,4,6-Tribromophenol</i>		32.5		ug/L	47.4	69%	26 - 148	7033234	NQC2177-01	03/23/07 10:42
<i>Surrogate: Phenol-d5</i>		13.7		ug/L	47.4	29%	10 - 94	7033234	NQC2177-01	03/23/07 10:42
<i>Surrogate: 2-Fluorobiphenyl</i>		33.1		ug/L	47.4	70%	23 - 130	7033234	NQC2177-01	03/23/07 10:42
<i>Surrogate: 2-Fluorophenol</i>		19.5		ug/L	47.4	41%	10 - 97	7033234	NQC2177-01	03/23/07 10:42
<i>Surrogate: Nitrobenzene-d5</i>		28.8		ug/L	47.4	61%	38 - 136	7033234	NQC2177-01	03/23/07 10:42

Client	Barr Engineering (14336) 3236 Emerald Lane Jefferson City, MO 65109	Work Order:	NQC2197
		Project Name:	Bonne Terre Mine Tailings Site 25/86-014
		Project Number:	Bonne Terre Mine Tailings Site 25/86-014
Attn	Ty Morris	Received:	03/16/07 08:00

### PROJECT QUALITY CONTROL DATA

#### Matrix Spike Dup

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
<b>General Chemistry Parameters</b>												
<b>7033089-MSD1</b>												
Nitrate/Nitrite as N	2.45	7.82		mg/L	6.00	90%	90 - 110	2	20	7033089	NQC2239-02	03/17/07 00:21
<b>7033286-MSD1</b>												
Total Organic Carbon	98.2	116		ug/mL	20.0	89%	75 - 127	0	20	7033286	NQC2097-01	03/18/07 11:09
<b>7033424-MSD1</b>												
Specific conductance	1180	1270		umho/cm	101	89%	0 - 200	0	10	7033424	NQCI676-01	03/19/07 16:01
<b>7034197-MSD1</b>												
Chemical Oxygen Demand	2.88	47.4	M8	ug/mL	50.0	89%	90 - 110	0.6	10	7034197	NQC2197-01	03/22/07 19:46
<b>7034662-MSD1</b>												
Ammonia as N	0.184	4.59	M2	ug/mL	5.00	88%	90 - 110	3	28	7034662	NQC2239-02	03/26/07 19:07
<b>7034666-MSD1</b>												
Fluoride	0.137	1.91		ug/mL	2.00	89%	80 - 120	0	19	7034666	NQC2197-01	03/27/07 03:07
<b>7034769-MSD1</b>												
Total Kjeldahl Nitrogen	0.173	2.50		mg/L	2.50	93%	90 - 110	0.4	20	7034769	NQC2239-02	03/27/07 19:06
<b>7034773-MSD1</b>												
Phosphorus	0.0260	2.05		ug/mL	2.00	101%	76 - 111	4	31	7034773	NQC2190-01	03/27/07 10:31
<b>7034774-MSD1</b>												
Phenolics	ND	0.593	M2	ug/mL	0.750	79%	80 - 120	4	34	7034774	NQC2197-01	03/27/07 10:59
<b>7034775-MSD1</b>												
Cyanide	0.00160	0.0947		ug/mL	0.100	93%	72 - 121	8	29	7034775	NQC2197-01	03/27/07 11:53
<b>Total Metals by EPA Method 6010B</b>												
<b>7033499-MSD1</b>												
Cadmium	87.7	102	MHA	mg/kg	19.9	72%	75 - 125	10	20	7033499	NQC2197-02	03/21/07 23:31
Lead	4480	3910	MHA	mg/kg	99.4	-573%	75 - 125	14	20	7033499	NQC2197-02	03/22/07 11:01
Zinc	5110	5050	MHA	mg/kg	99.4	-60%	75 - 125	7	20	7033499	NQC2197-02	03/22/07 11:01
<b>Total Metals by EPA Method 200.7</b>												
<b>7033322-MSD1</b>												
Aluminum	ND	2.27		mg/L	2.00	114%	70 - 130	3	20	7033322	NQC1995-01	03/20/07 09:13
Antimony	ND	0.0923		mg/L	0.100	92%	70 - 130	3	20	7033322	NQC1995-01	03/20/07 09:13
Arsenic	ND	0.0412		mg/L	0.0500	82%	70 - 130	0	20	7033322	NQC1995-01	03/20/07 09:13
Barium	0.00300	2.08		mg/L	2.00	104%	70 - 130	3	20	7033322	NQC1995-01	03/20/07 09:13
Beryllium	ND	0.0489		mg/L	0.0500	98%	70 - 130	1	20	7033322	NQC1995-01	03/20/07 09:13
Boron	0.167	1.22		mg/L	1.00	105%	70 - 130	2	20	7033322	NQC1995-01	03/20/07 09:13

Client	Barr Engineering (14336) 3236 Emerald Lane Jefferson City, MO 65109	Work Order:	NQC2197
		Project Name:	Bonne Terre Mine Tailings Site 25/86-014
		Project Number:	Bonne Terre Mine Tailings Site 25/86-014
Attn	Ty Morris	Received:	03/16/07 08:00

**PROJECT QUALITY CONTROL DATA**  
**Matrix Spike Dup - Cont.**

Analyte	Orig. Val.	Duplicate	Q	Units	Spike		Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time										
					Conc	% Rec.																
<b>Total Metals by EPA Method 200.7</b>																						
<b>7033322-MSD1</b>																						
Cadmium	0.00170	0.0524		mg/L	0.0500	101%	70 - 130	0.2	20	7033322	NQC1995-01	03/20/07 09:13										
Chromium	0.00970	0.215		mg/L	0.200	103%	70 - 130	0.5	20	7033322	NQC1995-01	03/20/07 09:13										
Cobalt	ND	0.497		mg/L	0.500	99%	70 - 130	1	20	7033322	NQC1995-01	03/20/07 09:13										
Copper	0.00300	0.271		mg/L	0.250	107%	70 - 130	3	20	7033322	NQC1995-01	03/20/07 09:13										
Iron	ND	1.06		mg/L	1.00	106%	70 - 130	0.9	20	7033322	NQC1995-01	03/20/07 09:13										
Lead	0.00430	0.0518		mg/L	0.0500	95%	70 - 130	0.8	20	7033322	NQC1995-01	03/20/07 09:13										
Manganese	0.0116	0.520		mg/L	0.500	102%	70 - 130	2	20	7033322	NQC1995-01	03/20/07 09:13										
Molybdenum	0.0452	0.465		mg/L	0.500	84%	70 - 130	3	20	7033322	NQC1995-01	03/20/07 09:13										
Nickel	ND	0.505		mg/L	0.500	101%	70 - 130	1	20	7033322	NQC1995-01	03/20/07 09:13										
Selenium	0.0343	0.0826		mg/L	0.0500	97%	70 - 130	4	20	7033322	NQC1995-01	03/20/07 09:13										
Silver	ND	0.0569		mg/L	0.0500	114%	70 - 130	1	20	7033322	NQC1995-01	03/20/07 09:13										
Thallium	ND	0.0560		mg/L	0.0500	112%	70 - 130	5	20	7033322	NQC1995-01	03/20/07 12:41										
Zinc	0.369	0.882		mg/L	0.500	103%	70 - 130	2	20	7033322	NQC1995-01	03/20/07 09:13										
<b>Mercury by EPA 245.1</b>																						
<b>7033571-MSD1</b>																						
Mercury	ND	0.00107		mg/L	0.00100	107%	70 - 130	4	20	7033571	NQC2197-01	03/22/07 15:11										
<b>Organochlorine Pesticides and/or PCBs by EPA Method 608</b>																						
<b>7033200-MSD1</b>																						
PCB-1248	ND	7.98		ug/L	10.0	80%	38 - 158	9	39	7033200	NQC2197-01	03/19/07 16:33										
Surrogate: Tetrachloro-meta-xylene		0.848		ug/L	1.00	85%	44 - 131			7033200	NQC2197-01	03/19/07 16:33										
Surrogate: Decachlorobiphenyl		0.824		ug/L	1.00	82%	24 - 110			7033200	NQC2197-01	03/19/07 16:33										
<b>7033201-MSD1</b>																						
Aldrin	ND	0.690		ug/L	1.00	69%	42 - 122	1	56	7033201	NQC2197-01	03/20/07 04:08										
delta-BHC	ND	0.730		ug/L	1.00	73%	19 - 140	3	53	7033201	NQC2197-01	03/20/07 04:08										
alpha-BHC	ND	0.710		ug/L	1.00	71%	37 - 134	4	53	7033201	NQC2197-01	03/20/07 04:08										
beta-BHC	ND	0.760		ug/L	1.00	76%	17 - 147	1	53	7033201	NQC2197-01	03/20/07 04:08										
gamma-BHC (Lindane)	ND	0.720		ug/L	1.00	72%	32 - 127	4	59	7033201	NQC2197-01	03/20/07 04:08										
alpha-Chlordane	ND	0.740		ug/L	1.00	74%	45 - 119	0	53	7033201	NQC2197-01	03/20/07 04:08										
gamma-Chlordane	ND	0.720		ug/L	1.00	72%	45 - 119	1	53	7033201	NQC2197-01	03/20/07 04:08										
4,4'-DDD	ND	0.750		ug/L	1.00	75%	31 - 141	1	53	7033201	NQC2197-01	03/20/07 04:08										
4,4'-DDE	ND	0.770		ug/L	1.00	77%	30 - 145	1	53	7033201	NQC2197-01	03/20/07 04:08										
4,4'-DDT	ND	0.750		ug/L	1.00	75%	25 - 160	1	49	7033201	NQC2197-01	03/20/07 04:08										
Dieldrin	ND	0.770		ug/L	1.00	77%	36 - 146	4	44	7033201	NQC2197-01	03/20/07 04:08										
Endosulfan I	ND	0.710		ug/L	1.00	71%	45 - 153	3	53	7033201	NQC2197-01	03/20/07 04:08										
Endosulfan II	ND	0.730		ug/L	1.00	73%	10 - 202	1	53	7033201	NQC2197-01	03/20/07 04:08										
Endosulfan sulfate	ND	0.730		ug/L	1.00	73%	26 - 144	6	53	7033201	NQC2197-01	03/20/07 04:08										
Endrin	ND	0.830		ug/L	1.00	83%	30 - 147	2	47	7033201	NQC2197-01	03/20/07 04:08										
Endrin aldehyde	ND	0.650		ug/L	1.00	65%	48 - 142	0	85	7033201	NQC2197-01	03/20/07 04:08										

Client	Barr Engineering (14336) 3236 Emerald Lane Jefferson City, MO 65109	Work Order:	NQC2197
		Project Name:	Bonne Terre Mine Tailings Site 25/86-014
		Project Number:	Bonne Terre Mine Tailings Site 25/86-014
Attn	Ty Morris	Received:	03/16/07 08:00

### PROJECT QUALITY CONTROL DATA

#### Matrix Spike Dup - Cont.

Analyte	Orig. Val.	Duplicate	Q	Units	Spike		Target		RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
					Conc	% Rec.	Range						
<b>Organochlorine Pesticides and/or PCBs by EPA Method 608</b>													
<b>7033201-MSD1</b>													
Endrin ketone	ND	0.710		ug/L	1.00	71%	43 - 163	6	71	7033201	NQC2197-01	03/20/07 04:08	
Heptachlor	ND	0.720		ug/L	1.00	72%	34 - 111	3	62	7033201	NQC2197-01	03/20/07 04:08	
Heptachlor epoxide	ND	0.730		ug/L	1.00	73%	37 - 142	3	53	7033201	NQC2197-01	03/20/07 04:08	
Methoxychlor	ND	0.770		ug/L	1.00	77%	53 - 156	1	75	7033201	NQC2197-01	03/20/07 04:08	
<i>Surrogate: Tetrachloro-meta-xylene</i>		1.45		ug/L	2.00	72%	34 - 165			7033201	NQC2197-01	03/20/07 04:08	
<i>Surrogate: Decachlorobiphenyl</i>		1.37		ug/L	2.00	68%	13 - 153			7033201	NQC2197-01	03/20/07 04:08	

Client	Barr Engineering (14336) 3236 Emerald Lane Jefferson City, MO 65109	Work Order:	NQC2197
		Project Name:	Bonne Terre Mine Tailings Site 25/86-014
		Project Number:	Bonne Terre Mine Tailings Site 25/86-014
Attn	Ty Morris	Received:	03/16/07 08:00

#### DATA QUALIFIERS AND DEFINITIONS

- CF2** Confirmatory analysis was past holding time.
- H** Sample analysis performed past method-specified holding time.
- HTI** The holding time for this test is immediate. The laboratory measurement, therefore, may not be suitable for compliance purposes.
- L** Laboratory Control Sample and/or Laboratory Control Sample Duplicate recovery was above the acceptance limits. Analyte not detected, data not impacted.
- L2** Laboratory Control Sample and/or Laboratory Control Sample Duplicate recovery was below acceptance limits.
- M2** The MS and/or MSD were below the acceptance limits due to sample matrix interference. See Blank Spike (LCS).
- M4** The MS/MSD required a dilution due to matrix interference. Because of this dilution, the matrix spike concentrations in the sample were reduced to a level where the recovery calculation does not provide useful information. See Blank Spike (LCS).
- M7** The MS and/or MSD were above the acceptance limits. See Blank Spike (LCS).
- M8** The MS and/or MSD were below the acceptance limits. See Blank Spike (LCS).
- MHA** Due to high levels of analyte in the sample, the MS/MSD calculation does not provide useful spike recovery information. See Blank Spike (LCS).
- MNR** No results were reported for the MS/MSD. The sample used for the MS/MSD required dilution due to the sample matrix. Because of this, the spike compounds were diluted below the detection limit.
- R2** The RPD exceeded the acceptance limit.
- ND** Not detected at the reporting limit (or method detection limit if shown)

#### METHOD MODIFICATION NOTES

350.1 M - M = Ammonia-Nitrogen method modified for midi-distillation with Lachat Procedure 10-107-06-1-A.

COD 410.4 M - M = COD method modified for use of Hach method 8000.

420.2 M and 9066M - M = Phenolics method modified for midi-distillation with Lachat Procedure 10-210-00-1-B.



**Nashville Division**  
**COOLER RECEIPT FORM**

BC#

NQC2197

Cooler Received/Opened On 03/16/07 08001. Indicate the Airbill Tracking Number (last 4 digits for FedEx only) and Name of Courier below: 7355

Fed-Ex	UPS	Velocity	DHL	Route	Off-street	Misc.
--------	-----	----------	-----	-------	------------	-------

2. Temperature of representative sample or temperature blank when opened: 0.2 Degrees Celsius  
(indicate IR Gun ID#)

NA	A00466	A00750	A01124	101282	Raynger ST	90943149
----	--------	--------	--------	--------	------------	----------

3. Were custody seals on outside of cooler? ..... YES  NO  NA

a. If yes, how many and where: 1/19/07

4. Were the seals intact, signed, and dated correctly? ..... YES  NO  NA 5. Were custody papers inside cooler? ..... YES  NO  NA I certify that I opened the cooler and answered questions 1-5 (initial)

6. Were custody seals on containers: YES  NO  and Intact YES  NO  NA   
were these signed, and dated correctly? ..... YES  NO  NA

7. What kind of packing material used? Bubblewrap  Peanuts  Vermiculite  Foam Insert   
Plastic bag  Paper  Other  None

8. Cooling process: Ice  Ice-pack  Ice (direct contact)  Dry Ice  Other  None 9. Did all containers arrive in good condition ( unbroken)? ..... YES  NO  NA 10. Were all container labels complete (#, date, signed, pres., etc)? ..... YES  NO  NA 11. Did all container labels and tags agree with custody papers? ..... YES  NO  NA 12. a. Were VOA vials received? ..... YES  NO  NA b. Was there any observable head space present in any VOA vial? ..... YES  NO  NA I certify that I unloaded the cooler and answered questions 6-12 (initial)13. a. On preserved bottles did the pH test strips suggest that preservation reached the correct pH level? YES  NO  NA b. Did the bottle labels indicate that the correct preservatives were used? ..... YES  NO  NA 

If preservation in-house was needed, record standard ID of preservative used here \_\_\_\_\_

14. Was residual chlorine present? ..... YES  NO  NA I certify that I checked for chlorine and pH as per SOP and answered questions 13-14 (initial)15. Were custody papers properly filled out (ink, signed, etc)? ..... YES  NO  NA 16. Did you sign the custody papers in the appropriate place? ..... YES  NO  NA 17. Were correct containers used for the analysis requested? ..... YES  NO  NA 18. Was sufficient amount of sample sent in each container? ..... YES  NO  NA I certify that I entered this project into LIMS and answered questions 15-18 (initial)I certify that I attached a label with the unique LIMS number to each container (initial)19. Were there Non-Conformance issues at login YES  NO  Was a PIPE generated YES  NO # \_\_\_\_\_

BIS = Broken in shipment

Cooler Receipt Form

**NQC2197**  
 03/30/07 23:59

Client: Barr Engineering (14336)

Address: 3236 Emerald Lane

MO 65109

City, State, Zip: Jefferson City

Client Invoice Contact: Ty Morris

Client Project Mgr: Ty Morris

Client Telephone#: (573) 638-5020

Fax: (573) 638-5001

Sampler Name (Print): Ty Morris

Craig Burger

Sampler Signature: 



TA Account #: 14336

PO #:

Invoice to: Barr Engineering (14282)

Report to: Barr Engineering (14336)

Project Name: Bonne Terre Mine Tailings Site 25/86-014

Facility ID: Bonne Terre Mine Tailings Site 25/86-014

Site Address:

City, State, Zip: Missouri

Regulatory District (CA):

Sample ID	Date Sampled	Time Sampled	# Containers Shipped	Field Filtered	Composite	Preservative	Matrix	Analyze for	
								Specified	Other
BTE-1 <sup>ST</sup> QTR-07	3/14/07	1527-1542	32	2		(Yellow Label) H2SO4	Drinking Water	X	
LW-10-DUP		950	1			(Black Label) None	Groundwater		X X
LW-20-DUP		1025	1			(Red Label) HNO3	Wastewater		X X X
LW-30-DUP		1055	1			(Yellow Label) Glass H2SO4	Sludge		X X X
LW-40-DUP		1230	1			(Orange Label) NaOH	Soil		X X X
LW-48-DUP		1300	1			(Blue Label) HCl			X X X
Sodium Bisulfate						Methanol			
Trp Blanks	1	-	2						X

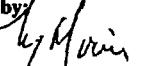
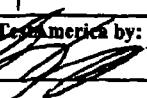
COMMENTS: All turn around times are calculated from the time of receipt at TestAmerica.

NOTES/SPECIAL INSTRUCTIONS: BO # 1203

\* Pre-Arrangements must be made AT LEAST 48 Hours in ADVANCE to receive results with RUSH turn around time commitments; additional charges may be assessed.

Samples Shipped In Two Coolers

There may be a charge assessed for TestAmerica disposing of sample remainders.

Relinquished by: 	Date: 3/15/07	Time: 1600	Received by: FedEx	Date: 3/15/07	Time: 1600	Relinquished by:	Date:	Time:	
Shipped Via:	Shipped Via:				QC Deliverables (Please Circle One):			Date Due of Report:	
Received for TestAmerica by: 	Date: 3/14/07	Time: 1600	Temperature Upon Receipt:  2	Sample Containers Intact? Y N 	VOCs Free of Headspace? Y N 	Level 2	Level 3	Level 4	Site Specific

# TestAmerica

ANALYTICAL TESTING CORPORATION

*Ship to:*

Company	Barr Engineering (14336)		
Address	3236 Emerald Lane		
City, State, Zip	Jefferson City	MO	65109
Attn	Ty Morris	(673) 638-6020	

Due Date: 2-12-07

A. Jones

**Shipping Manifest (Client Copy)**

*Not for use as a COC*

Order #	1203-02082007-1348
Project	Boone Terre Mine Tailings Site 26/88-014
Account #	14336
Company	Barr Engineering (14336)
Address	3236 Emerald Lane

Sample id	Matrix	# Samples
	Water	1

Analyses Requested for "EACH" Sample

Beryllium Total EPA 200.7  
 608 PCBs  
 Copper Total EPA 200.7  
 Conductance Specific  
 COD EPA 410.4  
 Cobalt Total EPA 200.7  
 Chromium Total EPA 200.7  
 Chloride by IC 300.0  
 Calcium Total EPA 200.7  
 Cadmium Total EPA 200.7  
 Fluoride IC 300.0  
 BOD 5 Day 405.1  
 Hardness, Calculation by 200.7  
 Barium Total EPA 200.7  
 Arsenic Total EPA 200.7  
 Antimony Total EPA 200.7  
 Ammonia 350.1  
 Aluminum Total EPA 6010B  
 Alkalinity Total by 310.1  
 625 Modified Semivolatiles  
 624 Single - Bis(2-chloromethyl)ether  
 624 Extended  
 608 Pesticides  
 Boron Total EPA 200.7  
 Phenols 420.2  
 TOC 415.1  
 TKN 351.2  
 Thallium Total EPA 200.7

Collect the following for "EACH" Sample"

- 1 Y\_500 mL Amber Glass H<sub>2</sub>SO<sub>4</sub>
- 1 Y\_250 mL Plastic H<sub>2</sub>SO<sub>4</sub>
- 3 Y\_125 mL Plastic H<sub>2</sub>SO<sub>4</sub>
- 2 Y\_1 L Glass WM H<sub>2</sub>SO<sub>4</sub>
- 1 W\_250 mL Plastic Unpreserved
- 8 W\_125 mL Plastic Unpreserved
- 3 W\_1 L Plastic Unpreserved
- 6 W\_1 L Amber Glass Unpreserved
- 3 VOA Vial HCl
- 1 R\_250 mL Plastic HNO<sub>3</sub>
- 1 O\_250 mL Plastic NaOH
- 1 B\_125 mL Plastic HCl

**Client notes**

--

**Lab Notes**

--



\* X X 0 0 0 1 2 0 3 - 0 2 0 8 0 7 - 1 3 4 8 \*

Date Shipped:	
Shipper's Initials	
Insurance Amount	
Cooler ID's	
Shipping Weight	
Shipper	

# TestAmerica

ANALYTICAL TESTING CORPORATION

*Ship to:*

Company	Barr Engineering (14336)		
Address	3238 Emerald Lane		
City, State, Zip	Jefferson City	MO	65109
Attn	Ty Morris	(573) 638-6020	

**Due Date:** 2-12-07

A. Jones

**Shipping Manifest (Client Copy)**

*Not for use as a COC*

Order #	1203-02082007-1348
Project	Boone Terre Mine Tailings Site 25/86-014
Account #	14336
Company	Barr Engineering (14336)
Address	3238 Emerald Lane

Sample id	Matrix	# Samples
Sulfate by IC 300.0		
Solids Suspended 160.2		
Solids Settleable 160.5		
Solids Dissolved 160.1		
Sodium Total EPA 200.7		
Silver Total EPA 200.7		
Cyanide Total 335.3		
Phosphorus Total 365.4		
Zinc Total EPA 200.7		
pH 150.1		
Nitrate-Nitrite, Color, Auto. 353.2		
Nickel Total EPA 200.7		
Molybdenum Total EPA 200.7		
Mercury EPA 245.1		
Manganese Total EPA 200.7		
Magnesium Total EPA 200.7		
Lead Total EPA 200.7		
Iron Total EPA 200.7		
HEM 1664 (Oil & Grease)		
Selenium Total EPA 200.7		

**Client notes**

**Lab Notes**



\* X X 0 0 0 1 2 0 3 - 0 2 0 8 0 7 - 1 3 4 8 \*

Date Shipped:	<input type="text"/>
Shipper's Initials	<input type="text"/>
Insurance Amount	<input type="text"/>
Cooler ID's	<input type="text"/>
Shipping Weight	<input type="text"/>
Shipper	<input type="text"/>



**Nashville Division**  
**COOLER RECEIPT FORM**

BC#

Cooler Received/Opened On: 3/16/2007 @ 8:00

Indicate the Airbill Tracking Number (last 4 digits for Fedex only) and Name of Courier below:

1369

Fed-EX

2. Temperature of representative sample or temperature blank when opened: -0.2 Degrees Celsius  
(indicate IR Gun ID#)

92171982

3. Were custody seals on outside of cooler?.....  YES... NO... NA

a. If yes, how many and where: 1 Back

4. Were the seals intact, signed, and dated correctly?.....  YES... NO... NA

5. Were custody papers inside cooler?.....  YES... NO... NA

I certify that I opened the cooler and answered questions 1-5 (initial).....

6. Were custody seals on containers:  YES  NO and Intact  
..... were these signed, and dated correctly?  YES... NO... NA

7. What kind of packing material used?  Bubblewrap  Peanuts  Vermiculite  Foam Insert  
 Plastic bag  Paper  Other \_\_\_\_\_ None

8. Cooling process:  Ice  Ice-pack  Ice (direct contact)  Dry ice  Other None

9. Did all containers arrive in good condition (unbroken)?.....  YES... NO... NA

10. Were all container labels complete (#, date, signed, pres., etc)?.....  YES... NO... NA

11. Did all container labels and tags agree with custody papers?.....  YES... NO... NA

12. a. Were VOA vials received?.....  YES... NO... NA

b. Was there any observable head space present in any VOA vial?.....  YES... NO... NA

I certify that I unloaded the cooler and answered questions 6-12 (initial).....

13. a. On preserved bottles did the pH test strips suggest that preservation reached the correct pH level?  YES... NO... NA

b. Did the bottle labels indicate that the correct preservatives were used?.....  YES... NO... NA

If preservation in-house was needed, record standard ID of preservative used here \_\_\_\_\_

14. Was residual chlorine present?.....  YES... NO... NA

I certify that I checked for chlorine and pH as per SOP and answered questions 13-14 (initial).....

15. Were custody papers properly filled out (ink, signed, etc)?.....  YES... NO... NA

16. Did you sign the custody papers in the appropriate place?.....  YES... NO... NA

17. Were correct containers used for the analysis requested?.....  YES... NO... NA

18. Was sufficient amount of sample sent in each container?.....  YES... NO... NA

I certify that I entered this project into LIMS and answered questions 15-18 (initial).....

I certify that I attached a label with the unique LIMS number to each container (initial).....

19. Were there Non-Conformance issues at login YES NO Was a PIPE generated YES NO # \_\_\_\_\_

BIS = Broken in shipment  
Cooler Receipt Form

LF-1  
End of Form

Revised 3/9/06

## Ty Morris

---

**From:** Nations, Mark [mnations@doerun.com]  
**Sent:** Monday, October 08, 2007 9:39 AM  
**To:** Ty Morris  
**Subject:** FW: Soil Sample results  
**Attachments:** LW Dam West of Eaton Creek 02Oct07.pdf

---

**From:** Hopkins, Larry  
**Sent:** Thursday, October 04, 2007 7:01 AM  
**To:** Nations, Mark  
**Subject:** Soil Sample results

Mark  
Attached are the soil sample results for Eaton Creek.

Also the results for soil samples taken at the Brown property 02Oct07.

#49--154 ppm  
#50--175 ppm  
#51--330 ppm  
#52--180 ppm  
#53--316 ppm  
#54--179 ppm  
#55--188 ppm  
#56--171 ppm  
#57--312 ppm  
#58--279 ppm  
#59--100 ppm

If you have any questions call.

Larry

October 30, 2007 2:41:30PM

Client:	Barr Engineering (14336)	Work Order:	NQJ2435
	3236 Emerald Lane	Project Name:	Leadwood Mine Tailings Site 25/86-013
	Jefferson City, MO 65109	Project Nbr:	Leadwood Mine Tailings Site 25/ 86-013
Attn:	Ty Morris	P/O Nbr:	
		Date Received:	10/20/07

SAMPLE IDENTIFICATION	LAB NUMBER	COLLECTION DATE AND TIME
LW-50-Dup	NQJ2435-01	10/03/07 11:00
LW-59-Dup	NQJ2435-02	10/03/07 11:30
LW-CS-05	NQJ2435-03	10/09/07 18:30
LW-CS-06	NQJ2435-04	10/09/07 18:35

An executed copy of the chain of custody, the project quality control data, and the sample receipt form are also included as an addendum to this report. If you have any questions relating to this analytical report, please contact your Laboratory Project Manager at 1-800-765-0980. Any opinions, if expressed, are outside the scope of the Laboratory's accreditation.

This material is intended only for the use of the individual(s) or entity to whom it is addressed, and may contain information that is privileged and confidential. If you are not the intended recipient, or the employee or agent responsible for delivering this material to the intended recipient, you are hereby notified that any dissemination, distribution, or copying of this material is strictly prohibited. If you have received this material in error, please notify us immediately at 615-726-0177.

The Chain(s) of Custody, 2 pages, are included and are an integral part of this report.

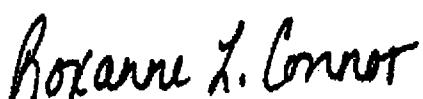
These results relate only to the items tested. This report shall not be reproduced except in full and with permission of the laboratory.

All solids results are reported in wet weight unless specifically stated.

Estimated uncertainty is available upon request.

This report has been electronically signed.

Report Approved By:



Roxanne Connor

Program Manager - Conventional Accounts

Client Barr Engineering (14336)  
3236 Emerald Lane  
Jefferson City, MO 65109  
Attn Ty Morris

Work Order: NQJ2435  
Project Name: Leadwood Mine Tailings Site 25/86-013  
Project Number: Leadwood Mine Tailings Site 25/ 86-013  
Received: 10/20/07 08:05

## ANALYTICAL REPORT

Analyte	Result	Flag	Units	MRL	Dilution Factor	Analysis Date/Time	Method	Batch
<b>Sample ID: NQJ2435-01 (LW-50-Dup - Soil) Sampled: 10/03/07 11:00</b>								
General Chemistry Parameters								
% Dry Solids	97.2		%	0.500	1	10/25/07 09:06	SW-846	7104605
Total Metals by EPA Method 6010B								
Cadmium	1.35		mg/kg dry	0.982	1	10/24/07 19:24	SW846 6010B	7104624
Lead	195		mg/kg dry	0.982	1	10/24/07 19:24	SW846 6010B	7104624
Zinc	122		mg/kg dry	9.82	1	10/24/07 19:24	SW846 6010B	7104624
<b>Sample ID: NQJ2435-02 (LW-59-Dup - Soil) Sampled: 10/03/07 11:30</b>								
General Chemistry Parameters								
% Dry Solids	95.9		%	0.500	1	10/25/07 09:06	SW-846	7104605
Total Metals by EPA Method 6010B								
Cadmium	3.35		mg/kg dry	1.00	1	10/24/07 19:29	SW846 6010B	7104624
Lead	305		mg/kg dry	1.00	1	10/24/07 19:29	SW846 6010B	7104624
Zinc	316		mg/kg dry	10.0	1	10/24/07 19:29	SW846 6010B	7104624
<b>Sample ID: NQJ2435-03 (LW-CS-05 - Soil) Sampled: 10/09/07 18:30</b>								
General Chemistry Parameters								
% Dry Solids	85.2		%	0.500	1	10/25/07 09:06	SW-846	7104605
Total Metals by EPA Method 6010B								
Cadmium	ND		mg/kg dry	1.15	1	10/24/07 19:51	SW846 6010B	7104624
Lead	28.2		mg/kg dry	1.15	1	10/24/07 19:51	SW846 6010B	7104624
Zinc	39.3		mg/kg dry	11.5	1	10/24/07 19:51	SW846 6010B	7104624
<b>Sample ID: NQJ2435-04 (LW-CS-06 - Soil) Sampled: 10/09/07 18:35</b>								
General Chemistry Parameters								
% Dry Solids	87.2		%	0.500	1	10/25/07 09:06	SW-846	7104605
Total Metals by EPA Method 6010B								
Cadmium	ND		mg/kg dry	1.15	1	10/24/07 19:55	SW846 6010B	7104624
Lead	37.3		mg/kg dry	1.15	1	10/24/07 19:55	SW846 6010B	7104624
Zinc	52.0		mg/kg dry	11.5	1	10/24/07 19:55	SW846 6010B	7104624

Client Barr Engineering (14336)  
3236 Emerald Lane  
Jefferson City, MO 65109  
Attn Ty Morris

Work Order: NQJ2435  
Project Name: Leadwood Mine Tailings Site 25/86-013  
Project Number: Leadwood Mine Tailings Site 25/ 86-013  
Received: 10/20/07 08:05

## SAMPLE EXTRACTION DATA

Parameter	Batch	Lab Number	Wt/Vol Extracted	Extracted Vol	Date	Analyst	Extraction Method
<b>Total Metals by EPA Method 6010B</b>							
SW846 6010B	7104624	NQJ2435-01	0.52	100.00	10/24/07 08:09	JMR	EPA 3051 / 6010
SW846 6010B	7104624	NQJ2435-01	0.52	100.00	10/24/07 08:09	JMR	EPA 3051 / 6010
SW846 6010B	7104624	NQJ2435-01	0.52	100.00	10/24/07 08:09	JMR	EPA 3051 / 6010
SW846 6010B	7104624	NQJ2435-02	0.52	100.00	10/24/07 08:09	JMR	EPA 3051 / 6010
SW846 6010B	7104624	NQJ2435-02	0.52	100.00	10/24/07 08:09	JMR	EPA 3051 / 6010
SW846 6010B	7104624	NQJ2435-02	0.52	100.00	10/24/07 08:09	JMR	EPA 3051 / 6010
SW846 6010B	7104624	NQJ2435-02	0.52	100.00	10/24/07 08:09	JMR	EPA 3051 / 6010
SW846 6010B	7104624	NQJ2435-03	0.51	100.00	10/24/07 08:09	JMR	EPA 3051 / 6010
SW846 6010B	7104624	NQJ2435-03	0.51	100.00	10/24/07 08:09	JMR	EPA 3051 / 6010
SW846 6010B	7104624	NQJ2435-03	0.51	100.00	10/24/07 08:09	JMR	EPA 3051 / 6010
SW846 6010B	7104624	NQJ2435-04	0.50	100.00	10/24/07 08:09	JMR	EPA 3051 / 6010
SW846 6010B	7104624	NQJ2435-04	0.50	100.00	10/24/07 08:09	JMR	EPA 3051 / 6010
SW846 6010B	7104624	NQJ2435-04	0.50	100.00	10/24/07 08:09	JMR	EPA 3051 / 6010

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

2960 Foster Creighton Road Nashville, TN 37204 \* 800-765-0980 \* Fax 615-726-3404

Client Barr Engineering (14336)  
3236 Emerald Lane  
Jefferson City, MO 65109  
Attn Ty Morris

Work Order: NQJ2435  
Project Name: Leadwood Mine Tailings Site 25/86-013  
Project Number: Leadwood Mine Tailings Site 25/ 86-013  
Received: 10/20/07 08:05

## PROJECT QUALITY CONTROL DATA **Blank**

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
<b>Total Metals by EPA Method 6010B</b>						
<b>7104624-BLK1</b>						
Cadmium	<0.200		mg/kg wet	7104624	7104624-BLK1	10/24/07 19:15
Lead	<0.902		mg/kg wet	7104624	7104624-BLK1	10/24/07 19:15
Zinc	<1.00		mg/kg wet	7104624	7104624-BLK1	10/24/07 19:15

Client	Barr Engineering (14336) 3236 Emerald Lane Jefferson City, MO 65109	Work Order:	NQJ2435
Attn	Ty Morris	Project Name:	Leadwood Mine Tailings Site 25/86-013
		Project Number:	Leadwood Mine Tailings Site 25/ 86-013
		Received:	10/20/07 08:05

## PROJECT QUALITY CONTROL DATA LCS

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
<b>Total Metals by EPA Method 6010B</b>								
<b>7104624-BS1</b>								
Cadmium	20.0	18.7		mg/kg wet	93%	80 - 120	7104624	10/24/07 19:19
Lead	100	92.6		mg/kg wet	93%	80 - 120	7104624	10/24/07 19:19
Zinc	100	96.3		mg/kg wet	96%	80 - 120	7104624	10/24/07 19:19

Client Barr Engineering (14336)  
3236 Emerald Lane  
Jefferson City, MO 65109  
Attn Ty Morris

Work Order: NQJ2435  
Project Name: Leadwood Mine Tailings Site 25/86-013  
Project Number: Leadwood Mine Tailings Site 25/ 86-013  
Received: 10/20/07 08:05

**PROJECT QUALITY CONTROL DATA**  
**Matrix Spike**

Analyte	Orig. Val.	MS Val	Q	Units	Spike Conc	% Rec.	Target Range	Batch	Sample Spiked	Analyzed Date/Time
<b>Total Metals by EPA Method 6010B</b>										
<b>7104624-MS1</b>										
Cadmium	ND	20.7		mg/kg dry	22.4	93%	75 - 125	7104624	NQJ2585-02	10/24/07 21:25
Lead	8.28	119		mg/kg dry	112	99%	75 - 125	7104624	NQJ2585-02	10/24/07 21:25
Zinc	59.2	175		mg/kg dry	112	103%	75 - 125	7104624	NQJ2585-02	10/24/07 21:25

Client Barr Engineering (14336) Work Order: NQJ2435  
3236 Emerald Lane Project Name: Leadwood Mine Tailings Site 25/86-013  
Jefferson City, MO 65109 Project Number: Leadwood Mine Tailings Site 25/ 86-013  
Attn Ty Morris Received: 10/20/07 08:05

**PROJECT QUALITY CONTROL DATA****Matrix Spike Dup**

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
<b>Total Metals by EPA Method 6010B</b>												
<b>7104624-MSD1</b>												
Cadmium	ND	19.6		mg/kg dry	21.7	90%	75 - 125	6	20	7104624	NQJ2585-02	10/24/07 21:30
Lead	8.28	115		mg/kg dry	109	98%	75 - 125	4	20	7104624	NQJ2585-02	10/24/07 21:30
Zinc	59.2	168		mg/kg dry	109	100%	75 - 125	4	20	7104624	NQJ2585-02	10/24/07 21:30

---

Client	Barr Engineering (14336) 3236 Emerald Lane Jefferson City, MO 65109	Work Order:	NQJ2435
Attn	Ty Morris	Project Name:	Leadwood Mine Tailings Site 25/86-013
		Project Number:	Leadwood Mine Tailings Site 25/ 86-013
		Received:	10/20/07 08:05

---

**DATA QUALIFIERS AND DEFINITIONS**

**ND** Not detected at the reporting limit (or method detection limit if shown)

**METHOD MODIFICATION NOTES**



## COOLER RECEIPT

NQJ2435

Cooler Received/Opened On 10/20/2007 @ 0805

1. Tracking # 1787 (last 4 digits, FedEx)

Courier: FedEx IR Gun ID A00750

2. Temperature of rep. sample or temp blank when opened: 21 Degrees Celsius3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES...NA4. Were custody seals on outside of cooler? YES...NO...NAIf yes, how many and where: 1 (Front)5. Were the seals intact, signed, and dated correctly? YES...NO...NA6. Were custody papers inside cooler? YES...NO...NAI certify that I opened the cooler and answered questions 1-6 (initial) J7. Were custody seals on containers: YES NO and Intact YES...NO...NAWere these signed and dated correctly? YES...NO...NA8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None10. Did all containers arrive in good condition (unbroken)? YES...NO...NA11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA12. Did all container labels and tags agree with custody papers? YES...NO...NA13a. Were VOA vials received? YES...NO...NAb. Was there any observable headspace present in any VOA vial? YES...NO...NA14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers sequence # NAI certify that I unloaded the cooler and answered questions 7-14 (initial) J15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...NAb. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

If preservation in-house was needed, record standard ID of preservative used here \_\_\_\_\_

16. Was residual chlorine present? YES...NO...NAI certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (initial) J17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA18. Did you sign the custody papers in the appropriate place? YES...NO...NA19. Were correct containers used for the analysis requested? YES...NO...NA20. Was sufficient amount of sample sent in each container? YES...NO...NAI certify that I entered this project into LIMS and answered questions 17-20 (initial) JI certify that I attached a label with the unique LIMS number to each container (initial) J

21. Were there Non-Conformance issues at login? YES...NO Was a PIPE generated? YES...NO...# \_\_\_\_\_

NQJ2435

11/05/07 23:59

Client: Barr Engineering (14336)

1: 3236 Emerald Lane

2: Jefferson City

MO 65109

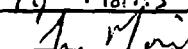
Client Invoice Contact: Ty Morris

Client Project Mgr: Ty Morris

Client Telephone#: (573) 638-5020

Fax: (573) 638-5001

Sampler Name (Print) Ty Morris

SamplerSignature: 

TA Account #: 425463

PO #:

Invoice to: Barr Engineering (14282)

Report to: Ty Morris

Project Name: Leadwood Mine Tailings Site 25/86-013

Facility ID: Leadwood Mine Tailings Site 25/ 86-013

Site Address:

City,State,Zip: Missouri

Regulatory District (CA):

Sample ID	Date Sampled	# Containers Shipped	Time Sampled	Preservative	Matrix	Analyze for			RUSH/TAT (Pre Schedule) <input checked="" type="checkbox"/>
						(specify)	Other	Soil	
LW-50-Dup	10/3/07	100	1	X	Groundwater		X	X	X
LW-59-Dup	10/3/07	130	1	X	Wastewater		X	X	X
LW-CS-05	10/9/07	1530	1	X	(Black Label) HNO3		X	X	X
LW-CS-06	10/9/07	1805	1	X	(Red Label) HNO3		X	X	X
				(Yellow Label) Plastic H2SO4	Glass H2SO4				
				(Orange Label) NaOH					
				(Blue Label) HCl					
				Sodium Bisulfate					
				Methanol					
				Field Filtered					
				Composite					
				Grab					

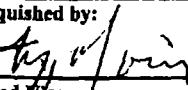
COMMENTS: All turn around times are calculated from the time of receipt at TestAmerica.

\* Pre-Arrangements must be made AT LEAST 48 Hours in ADVANCE to receive results with RUSH turn around time commitments; additional charges may be assessed.

There may be a charge assessed for TestAmerica disposing of sample remainders.

NOTES/SPECIAL INSTRUCTIONS: BO# 6642

Put LW-50-Dup & LW-59-Dup on separate ~~results~~ Sheet  
From LW-CS-05 & LW-CS-06, as well as From the water  
sample

Relinquished by: 	Date: 10/14/07	Time: 1600	Received by: FedEx	Date: 10/19/07	Time: 1600	Relinquished by:	Date:	Time:
Shipped Via:	Shipped Via:					QC Deliverables (Please Circle One):		Date Due of Report:
Received for TestAmerica by: 	Date: 10/07/07	Time: 00:00	Temperature Upon Receipt: 2	Sample Containers Intact? Y N	VOCs Free of Headspace? Y N	Level 2    Level 3    Level 4    Site Specific (If site specific, please pre-schedule w/ TestAmerica Project Manager or attach specific instructions)		